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USSR Report

TRANSPORTATION

No. 77

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BUGAYEV DISCUSSES PLAN FULFILLMENT, GOALS

Moscow GRAZHDANSKAYA AVIATSIYA in Russian No 1, Jan 82 pp 2-4

[Article by B.P. Bugayev, USSR minister of civil aviation: "Tasks and Prospects for Aeroflot"]

[Text] The second year of the 11th Five-Year Plan now stands open on our country's work calendar. We are entering into it with a firm, confident step, well aware that it will bring new achievements in all spheres of the building of communism and will become an important new stage in the further upsurge in the material and cultural living standards for Soviet people.

The workers of the Soviet Union unanimously approve the results of the recent CPSU Central Committee November Plenum and the sixth session of the USSR Supreme Soviet Tenth Convocation, which constituted an exacting examination of what has been achieved in realizing the historic decisions of the 26th CPSU Congress and in implementing the program outlined by it for the socioeconomic development of our Motherland.

"This plenum of the Central Committee," CPSU Central Committee general secretary comrade L.I. Brezhnev said, "can be regarded a the direct and immediate continuation of the work of the congress. At the congress we approved the economic policy for the eighties and confirmed the main directions for the economic and social development of the country. Now, at this CPSU Central Committee plenum, we are taking the next step."

Much has been achieved. After the 26th CPSU Congress, nationwide socialist competition was initiated in the country for the successful fulfillment and overfulfillment of the 1981 plan and the 11th Five-Year Plan as a whole. Collectives at industrial enterprises in Moscow, Leningrad and other cities and republics pledged to complete annual tasks by 7 November and they kept their word with honor. Socialist industry made a marked advance, insuring further production growth and improvement in technical-economic indicators. The plan for the total volume of output was fulfilled, prime costs were lowered, profit was increased. Labor productivity improved. Collectives in the sectors recovering gas and producing chemical plant protection agents, agricultural machines and machines for livestock farming and fodder production, along with instruments, means of automation and computers, sewn articles, furniture, good quality earthenware, clocks and other consumer goods worked especially successfully.

The labor of the farmers was marked with new production achievements. Despite the adverse weather conditions last year they grew and gathered in in good time the harvest of grain, cotton and other agricultural crops. The rural workers of Kazakhstan made a major contribution to the country's food resources; they poured more than 960 millions poods of good quality grain into the state granary. Rural workers in the Ukraine, Uzbekistan and Georgia worked confidently. The farmers of Azerbaijan gathered in record harvests. Kolkoz farmers and sovkhoz workers in Belorussia and Lithuania, and in the Stavropol area and the Kuban and Rostovskaya, Tyumenskaya and a number of other obalsts in the RSFSR achieved significant successes. CPSU Central Committee general secretary comrade L.I. Brezhnev warmly congratulated the leaders in agricultural production and wished them new labor victories.

Transportation, including air transportation, was also further developed. Having engaged in socialist competition to fulfill the plan for the first year of the five-year plan by the 64th anniversary of the Great October, workers in civil aviation developed a persistent struggle to meet state targets and the pledges they had adopted. As always, the communists were examples of inspired, highly productive labor. Hero of Socialist Labor, Mi-10k helicopter pilot from the Tyumen Aviation Enterprise Yu.A. Yuzhakov, Hero of Socialist Labor, USSR State Prize winner, flying instructor at the Samarkand Aviation Enterprise G.I. Tskhovrebov, Honored Pilot of the USSR, Il-62 captain from the Domodedovo Production Association A.F. Shubin, and Tu-134 captain from the Komi Administration P.P. Sergeyev--all delegates to the 26th CPSU Congress--and many other fliers recommended themselves as real guardsmen through their shock labor.

Most of Aeroflot's labor collectives worked rhythmically and smoothly through the year, striving to satisfy fully and in good time the demands of the national economy and public for air transportation. Compared with the final year of the 10th Five-Year Plan, a marked increase was insured in passenger traffic and the total volume of passenger departures and movement of mail and freight. The Tyumen and Moscow transportation administrations, the Turkmen and Armenian administrations and the Central International Air Services Administration achieved the greatest growth in work volume.

Services provided for the sectors of the national economy were improved. Annual targets for aviation-chemical work were met ahead of schedule, by 1 October. In agriculture and forestry about 100 million hectares were treated from the air. Particular attention was given to the most imortant national economic construction projects in West Siberia, the North and the Far East. Thousands of tons of urgent freight were delivered to construction workers on the Urenga-Nadym-Ukhta-Gryazovets gas pipeline and the Urenga-Chelyabinsk pipeline. Aviators participated actively in eliminating the consequences of flooding in the Far East and Sakhalin. They provided operational communications with populated points, helped in the evacuation of casualties, delivered food, clothing and drugs, and carried out other tasks for the headquarters in the struggle against the elements.

Aeroflot's international air routes continued their expansion. Regular air communications were established at the beginning of 1981 between Moscow and the capitals of the new African republics of Liberia and Sierra Leone. Aircraft flying the flag of the USSR now fly to 87 countries. One major event last year was the appearance of new aircraft on the overseas routes: the wide-bodied Il-86 that can carry 350 passengers, and the short-haul Yak-42 which carries 120 passengers. The new Soviet aircraft were highly assessed by aviation specialists and passengers.

The 1982 targets for Aeroflot include the following: passenger traffic 176 billion passenger kilometrs; passengers carried 109 million; freight and mail deliveries 3,145,000 tons; aviation-chemical work 95 million hectares; labor productivity to rise 2.5 percent above the 1981 level.

Everything that has been achieved has become possible thanks to the tireless concern of the CPSU and Soviet government and comrade L.I. Brezhnev personally for the development of civil aviation; thanks to the constant support for all our undertakings from the local party and soviet organs. It is the result of improvements in the organization of aviation production and the concentrated efforts of command personnel and party and public organizations in the struggle to achieve the best possible final results. The year's success is the result of the selfless labor of aviation workers, who embraced the state tasks as their own personal tasks, as a vital matter, and spared neither effort nor energy to fulfill them.

While giving what has been achieved its due, however, we must not close our eyes to the shortcomings and unresolved problems. Work results for 1981 indicate that, unfortunately, not all aviation collectives fulfilled their plan tasks. A number of administrations and enterprises failed to fulfill the plan for individual indicators. Capital investments were not assimilated everywhere in good time. There were frequent complaints from air travellers about poor service at airports and aboard aircraft. The preconditions for flying accidents, including crew error, have still not been overcome. Individual aviation workers are violating labor and production discipline.

Of course, some of these shortcoming result from objective difficulties. For example, it is impossible to discount irregular deliveries of aviation fuel and complex weather situations in the fall and winter period, which adversely affected flight regularity. But subjective factors, it seems, were felt to a greater degree: omissions in planning and management, inadequate organizational and educational work in collectives, the slackening of systematic control over the course of fulfillment of the state plan. Leaders in individual aviation enterprises were unable to overcome the force of inertia that came about at times when plans were partially corrected downward.

At a recent meeting of command and management personnel in civil aviation we discussed all these problems in detail. Specific measures were outlined to eliminate obstacles interfering with precise and well-organized work. They are making it possible to pull up the lagging sectors and insure unconditional fulfillment of the state plan for 1982 and the entire five-year plan.

There was a significant discussion on the prospects for the development of civil aviation. In the decisions of the 26th CPSU Congress and document adopted by the party and government, a comprehensive program has been outlined for improving efficiency and the quality of work in our sector, equipping it with up-to-date airborne and ground equipment, and improving work and everyday conditions for aircrews. The needs of civil aviation have been brought to the attention of a number of ministries and administrations that have been called upon to develop new aircraft and special aviation equipment and help in extending the network of airports and in the construction of production and cultural and everyday services projects.

Important and crucial tasks must be solved first and foremost by the workers in civil aviation. It is necessary to direct the efforts of aviation specialists and all workers in civil aviation toward further improvements in flight safety and the regularity of flights, improvements in the quality of maintenance and repair of aviation equipment, and the extensive introduction of the achievements of scientific and technical progress in production.

The demands of the national economy and the public for aviation services must be fully met and passanger transportation significantly improved. Schedule violations must be kept to a minimum, comfort in airports and airport buildings must be improved and service in general improved. One matter of special importance is reinforcing coordination among all kinds of transportation and insuring their precise and flexible interaction.

There must be constant improvements in the style of work by command personnel, the resonsibility of leaders at all levels for undeviating fulfillment of party and government directives must be increased, order and discipline must be strengthened everywhere and there must be good organization in every crew, every shift, every team.

From the very first days of the year all labor collectives must be mobilized for shock work, every aviator must find his place in the general order of things, in order to successfully carry out the envisaged program. All ideological and political-educational work and all forms of influence from party and public organizations must be focused on this. For, as the decisions of the 26th CPSU Congress and the CPSU Central Committee decree of 26 April 1979 stress, ideological-educational work must be lively and interesting and devoid of mechanical phrases and a standard set of ready formulas. Only then can it produce the required results.

Much in our complicated aviation production line depends on the precise interaction of its various parts. It is therefore important to perfect the regulation of all its component parts and quickly eliminate even insignificant misfires in the work. And the most fundamental thing is the need to bring into action all production reserves and learn to use them in a businesslike manner, with maximum return.

As comrade L.I. Brezhnev noted at the 26th CPSU Congress, "...a seemingly simple and very everyday thing--a businesslike attitude toward the general good and the ablity to use in full and purposefully everything that we have--is becoming the pivot of economic policy. The initiative of labor collectives and mass party work should be focused on this. And technical policy, capital investments policy and the system of planning and accounting indicators should also be focused on it."

Many years of experience show that great production reserves are hidden in the efficient use of fixed capital, primarily its most active part--the aircraft and helicopter inventory. This is why it is quite inadmissible when aircraft like the Il-62, Tu-154 and Tu-134 set out on scheduled flights with only a partial commercial load, sometimes half empty. And the empty runs made by Mi-8, Mi-6 and Mi-10k helicopters, which unfortunately are far from rare, might be called a real waste. The sector suffers significant loss because of aircraft and helicopter idle-time during technical servicing and repair and during loading and unloading operations.

Or take flight delays. They cause numerous complaints from passengers and adversely affect economic indicators. Are these not reserves?

True, they sometimes say that not everything here depends on us. There is no doubt about it; disrupted schedules do occur because of weather conditions and other reasons beyond the control of the aircrews. But in these cases it would be possible to correct the situation if proper category airfields were brought into use more actively and the number of M-1 scheduled flights, which insure better flight regularity, were increased. What, for example, is stopping the leaders of certain administrations from persistently dealing with the solution of this problem? Nothing at all. All that is needed is interest and a conscious understanding that with the introduction of as many M-1 flights as possible we obtain an additional potential for improving efficiency and the quality of work in air transportation.

The program for the further development of civil aviation provides for equipping aviation enterprises with the latest navigational aids and air traffic control and radiotechnical equipment. There will be a further extension of automated systems that make it possible to significantly improve throughput on routes and at airports and reduce the adverse effects of unfavorable weather conditions on flying. This will all raise the level of reliability in air movements and enhance flight safety. But there must be no foot-dragging in assimilating these means. Their timely commisioning should be regarded by every manager as an indispensable condition without which it is impossible to fulfill the state plan successfully.

Zealous management given present scales of production is inconceivable without thrifty consumption of material and technical resources. The decisions of the 26th CPSU Congress and the CPSU Central Committee and USSR Council of Ministers decree "On Strengthening Work To Save and Make Rational Use of Raw Materials, Fuel and Energy and Other Material Resources" and the directions of the CPSU Central Committee November Plenum oblige us to make thrifty use of raw materials and fuel and energy and to strictly observe a regime of thrift in all parts of the national economy.

In civil aviation saving in aviation fuel acquire special significance. Without this, any talk about bringing production reserves into play will be pointless. In recent years certain successes have been achieved in saving fuel. Steps are being taken to improve the productivity of flights and an energetic struggle is being waged for strict observance of limits discipline. A marked effect is being felt from optimization of cruising speeds for flights, rectification of air routes, reductions in the number of intermediate landings, more extensive use of flight simulators and so forth. In a number of administrations, however, primarily the Tyumen, Krasnoyarsk, Urals, Far East and Ukrainian administrations, considerable overconsumption above established limits is being allowed and this can in no way be justified.

Making every possible saving of aviation fuel is a task of paramount state significance. The struggle to carry it out should permeate all stages of aviation production, from the development of aircraft and engines to their ratioanl operation. The interest of aviation workers must be strengthened in the careful use of of fuels and lubricants, and aircrews and engineering-technical personnel and workers and employees must be encouraged in every possible way to make savings. Storage capacities for holding aviation fuel must be significantly increased and the production capacities of the fuel and lubricants services energetically developed.

A decisive factor in the development of civil aviation during the 11th Five-Year Plan and for the longer term is improvement in labor productivity. Increased production by aviation enterprises should be achieved with stable and even fewer numbers of workers. Hence, the increasing significance of tasks concerned with further improving the organization of labor and strengthening material and moral incentive. Measures to mechanize and automate production, including transportation processes and aircraft maintenance, are called upon to play a larger role. During the last five-year plan, various mechanisms fabricated by the civil aviation plants alone for this purpose were worth a total of R280 million. There must be no relaxation of this work in the future, because it is not only of great economic but also social significance because it facilitates the work of aviators and creates favorable conditions for growth in their qualifications and professional skills.

Success in all our work depends largely, if not decisively, on the realization of targets for capital construction and the commissioning of the most important projects. This is why it is essential to insure the strictest control over each construction site and strive to achieve the complete assimilation of capital investments in accordance with confirmed plans. Here, it is necessary first and foremost to show concern for the extension of the airfield network in Siberia and in the North and the Far East where air transportation is sometimes the sole means of travel. The greatest attention must be given to the development of air technical bases and repair plants. Without this we shall be unable to insure rhythmic and reliable operations by the aviation enterprises. And finally, the timely commissioning of housing, children's institutions and social and everyday projects is playing a particularly important role.

Science is revealing substantial potentials for improving production efficiency. It is primarily on science that the development and introduction of aircraft and helicopters possessing improved weight and aerodynamic characteristics, high reliability and economic operation, depend. It is science that can provide sound recommendations on extending the service life of aviation equipment, reducing fuel consumption per unit of transportation production and introducing progressive form and methods in the operation and maintenance of the aircraft and helicopter inventory. Science plays a large part in intensifying aviation production and improving labor and everyday conditions for aircrews. The insistent demand of the time is to insure accelerated rates of scientific and technical progress in all elements of civil aviation and to strive to achieve the operational and practical introduction of scientific developments.

One important guarantee for the successful implementation of our plans is the universal introduction of leading production experience. Thousands of outstanding flying aces, highly qualified engineering and technical workers and production innovators work in the collectives of civil aviation. The heroes of socialist labor, the honored pilots and navigators of the USSR and the state prize winners are possessed of colossal experience. Bringing the labor procedures and methods of the production leaders to all aviators and helping them to master progressive technology at each working place means to bring yet another not insignificant reserve into play. And, for this no kinds of extra material consumption are required; all that is needed is the desire and the initiative.

The decisions of the 26th CPSU Congress and the program for the economic and social development of the USSR in the 11th Five-Year Plan and for the longer term have provoked an unprecedented upsurge in the political and labor activities of aviation workers. In all aviation subdivisions socialist competition is gathering pace and valuable initiatives are being born. The movement for model collectives and to make Aeroflot the standard in transportation is broadening. Socialist competition has long been a tested and reliable means for activating the creative initiative of Soviet workers. Henceforth, too, its creative force must be directed toward the unconditional fulfillment and overfulfillment of plan tasks and toward solving the cardinal problems in the development of civil aviation.

As comrade L.I. Brezhnev stressed at the CPSU Central Committee November Plenum, 1982 will be filled with major political events. The trade union and Komsomol congresses will take place. There will be elections for local soviets of working people's deputies. The 60th anniversary of the Union of Soviet Socialist Republics will be celebrated. Each of these events has its own specific nature, its own political content. But at the same time they are all called upon to give a powerful new impetus to the further strengthening of the unity between the party and the people, bring all the nations and nationalities of the country into even closer cohesion, and promote an upsurge in the political and creative activity of the masses.

Like all Soviet people, workers in civil aviation have resolved to mark these great political events with stepped-up socialist pledges and ahead-of-schedule completion of plan tasks for the second year of the five-year plan. The words of Leonid Ilich Brezhnev are close and well understood by every aviator: "We must work better. We must compile plans better and fulfill them better. In a word, we must work more efficiently. This, comrades, in the final analysis, is basic and decisive."

In December last year our party, all Soviet people, and all people of good will marked the 75th birthday of Leonid Ilich Brezhnev, an outstanding political and state figure of the age, a tireless champion of peace and the happiness of people of labor. Leonid Ilich has won nationwide love and respect through his wholehearted service to the Motherland and our glorious CPSU. His entire life has been a feat on behalf of the most noble human ideals. His life's road has been a road of loyalty to the immortal behests of the great Lenin and the cause of communism.

Workers in civil aviation have much to do. They face great and crucial work in implementing the program for the development of the sector in the period 1981-1985 and for the period through 1990. And we are firmly convinced that each aviator will carry out his service duty with honor and make a worthy contribution in accomplishing the natiowide struggle outlined by our own Leninist party to implement the decisions of the 26th CPSU Congress.

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AEROFLOT'S PLANS FOR 1982 OUTLINED

Moscow GUDOK in Russian 11 Feb 82 p 4

[Article by V. Molodyakov: "Aeroflot's Horizons"]

[Text] Each year the pulse of air movements becomes more and more intensive. The length of Aeroflot's air routes today is almost a million kilometers. Over 3,600 cities and populated points in the country are connected by main air routes.

Last year Aeroflot's liners carried 109 million passengers, for whom 19 agencies and 100 airline ticket offices were opened. There was the beginning of nonstop trips linking Moscow, Leningrad, Kiev and other major cities of the European part of the Union with remote points of the North and Far East.

This year it is planned to open 22 new airlines and expand the network of airports capable of receiving the powerful Il-62 and Tu-154 passenger liners. A new run is envisaged by the Central Air Traffic Schedule: the Il-86 airbus will fly regularly from Moscow to Mineral'nyye Vody and Tashkent, and to Simferopol' and Paris. One other Aeroflot newcomer, the Yak-42, will begin to make around 100 trips from Moscow to Izhevsk, Voronezh, Kishinev, Saratov, Zhdanov, L'vov and many other cities.

Aeroflot gives special attention to service. In particular, by year's end the ASU-5 automated system for ticket sales, which will replace the "Sirena," will permit a considerable speed-up in the process of serving a passenger. Passport data and location and time of registration will be printed on the ticket automatically. The procedure of returning a ticket will be simplified to the maximum.

The first runways in Yakutsk and Krasnodar will be receiving the first liners very soon, modern air terminals will appear in Groznyy and Semipalatinsk, and construction will continue on major air complexes in Minsk, Khabarovsk, Syktyvkar, Krasnoyarsk and Magadan.

Aircraft with the Aeroflot emblem are well known beyond our country's borders. Our liners fly to the airports of 89 states.

All this was mentioned at a press conference organized by the USSR Ministry of Civil Aviation.

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CIVIL AVIATION PLANT'S 1982 PLEDGES

Moscow VOZDUSHNYY TRANSPORT in Russian 6 Feb 82 p 1

[Article: "Socialist Pledges of Civil Aviation Plant No 410 for 1982]; passages enclosed in slantlines printed in boldface]

[Text] /In fulfilling historic resolutions of the 26th CPSU Congress and heading for the banner dates of the 60th anniversary of the USSR's formation and 60th anniversary of Aeroflot, the collective of Civil Aviation Plant No 410 adopted the following socialist pledges for 1982:/

--To fulfill the plan for two years of the 11th Five-Year Plan by 23 December 1982;

--To fulfill the 1982 plan for production volume by 28 December;

--To produce 100,000 rubles of products above the plan;

--To obtain above-plan profits of 120,000 rubles by full-scale socialist competition under the motto "From maximum effect in each operation to maximum effectiveness of production";

--To produce consumer goods amounting to 250,000 rubles in retail prices;

--To cut repair times under the norms on the basis of an improvement in engineering, adoption of mechanization and improvement of labor organization: by 1 day for the An-24 aircraft, 9 days for the An-26 aircraft and 4 days for the An-30 aircraft;

--To turn out products with "good" or "excellent" grades and to take the quality factor to 0.96;

--To obtain an economic effect amounting to 225,000 rubles by the adoption of rationalization proposals;

--To provide for a further introduction of the achievements of scientific-technical progress, new equipment and foremost technology in production: to develop and manufacture special bands to convert impact riveting to pressure riveting in riveting operations; to introduce a mechanized stand into production for soldering the terminals of cable runs of the An-24, An-26 and An-30 aircraft; to mechanize the process of painting removable parts of An-24, An-26 and An-30 aircraft; and perform development on devices for automatic measurement of rotor rpm of the D-36 engine, engine response and rundown with output to EVM [electronic computer];

--To incorporate a cancellation of fly-offs of An-30 aircraft by the customer following repairs through an improvement in engineering and an increase in repair quality. To draw up technical documentation and incorporate a set of projects to increase the designated flying life of An-24 aircraft. To perform work of reinforcing structures on 16 aircraft to extend flying life;

--To increase workers' qualifications;

--To achieve an above-plan saving through introduction of measures for rational use of supplies and energy resources: 275,000 kw-hours of electrical energy, 920 gigacalories of thermal energy, 13,500 cubic meters of water, 4 tons of ferrous metal and 3 tons of nonferrous metal;

--To assist a sponsored sovkhoz in acquiring supplies and tools;

--To take part in performing agricultural work in the sponsored sovkhoz. To perform routine repairs of the school and kindergarten and repairs to the labor and rest camp and the Desna rest facility;

--To complete construction of the plant sports complex. To continue work of improving brigade forms of labor. On the basis of a full-scale patriotic initiative, to work without laggards and fulfill the plan for basic indicators by all brigades, sectors and shops;

--To continue labor cooperation with the Omsk Aggregate Plant imeni Kuybyshev, the KiAPO [expansion unknown] imeni 50th Anniversary of October, the Kiev OAO [expansion unknown], KIIGA [Kiev Institute of Civil Aviation Engineers] and the Zaporozh'ye Motorostroitel' Association.

/The socialist pledges were discussed and adopted at a meeting of the plant collective./

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SCIENTIFIC RESEARCH INSTITUTE'S 1982 PLEDGES

Moscow VOZDUSHNYY TRANSPORT in Russian 23 Jan 82 p 1

[Article: "Socialist Pledges of the State Scientific Research Institute of Civil Aviation for 1982"; passages enclosed in slantlines printed in boldface]

[Text] /The collective of the Order of Labor of Red Banner State Scientific Research Institute of Civil Aviation, implementing the historic resolutions of the 26th CPSU Congress and having joined in socialist competition for a worthy greeting to the 60th anniversary of the formation of the Union of Soviet Socialist Republics, makes the following socialist pledges for 1982./

To fulfill the thematic plan for scientific research work ahead of schedule, by 24 December 1982, with an annual economic effect of at least 50 million rubles.

To fulfill ahead of schedule and above the thematic plan the following projects through an improvement in labor organization and rational combination of projects in performing research:

--Complete the complex of projects and introduce flights by the Il-62, Tu-154 and Tu-134 aircraft into Civil Aviation with a reduced minimum for landing;

--Complete and introduce a combination of projects for setting up new fuel and oil consumption rates for operation, and consumption rates for aviation fuels, oils, lubricants and special fluids for maintenance of civil aviation aircraft and helicopters providing for a reduction in fuel consumption per unit of transport work, and the adjustment of existing consumption rates;

--Conduct research and place in operation increased designated flying lives for the An-12 aircraft and the Mi-6 and Mi-6A helicopters.

--Improve patterns in organizing production during maintenance under conditions of aviation equipment operation based on status (for the Il-62M, Tu-154, Tu-134, Il-86 and Yak-42 aircraft);

--Place in operation a set of technical and mathematical means and methods for ground navigational support to flights of the Il-86 aircraft to optimize the flight path;

--Introduce the "Program for Training Flight Personnel in the Il-86 Aircraft";

--Give practical assistance to GA [Civil Aviation] operating enterprises in mastering and introducing the SIV-1 visibility simulation system.

To attain a reduction of 5.5 percent in flight time of conducting tests while conducting flight tests through high-quality preparation of crews for flights, more precise execution of flights and maximum integration of tests. To save 850 tons of aviation fuel.

/The socialist pledges were discussed and adopted at general meetings of collectives of GosNII GA [State Scientific Research Institute of Civil Aviation] subunits.

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CSO: 1829/137

ARCTIC AIRPORT BUILT

Moscow VODNYY TRANSPORT in Russian 5 Dec 82 p 4

[Article by V. Lukin, director of the "North Pole-22" drifting scientific research station: "Alimovo Airport is Open"]

> [Text] Don't try to find this airport in the Aeroflot reference guide--it isn't there. Nonetheless it exists. And it is capable of handling not only the small Il-14 aircraft but the huge An-12 cargo planes as well. In addition to the uncommon name, the airport is famous by virtue of the fact that it is the northernmost airport on our planet. It is situated far beyond the 88th parallel on a large island of ice where the drifting scientific research station "North Pole-22" has for many years spread its strong and stable domain.

The glacial airfield for any "North Pole" station is the most indispensable point of support for the air bridge linking our polar expeditionaries with the mainland of the planet. Only by air do fresh produce, complex modern instrumentation, fuel, various items of expeditionary equipment, new films and bathroom brushes arrive--in short, everything necessary for a small collective to go about living and carrying out its work for a long year, far removed from the usual conditions of home, calmly and effectively.

The life of a glacial airfield is short. Treacherous movements of the ice and hummocking can destroy the results of polar expeditionary efforts in a matter of minutes. Then the cold arctic sun, as if to remind us that it shines everywhere nonetheless, sets about its work and transforms the ice surface beyond recognition.

Deep lakes of water filled with melted snow, twisting canyons of stream beds flowing in various directions, glacial mounds--this was our summer view of the airstrip built by the crew we relieved.

We had to select a new location for it. When the melting had stopped at the end of August, Vladimir Alimov, senior mechanic at our station, the physician Gennadiy Gorbunov and I went out to look. It would be necessary to select a relatively level strip about 1½ kilometers in length.

We rejected one variant after another in turn. In our boots we waded again and again through the wet snow, needle-like ice-crystal formations, and the thin ice that was beginning to freeze over slushy mixtures of water and snow. Many times we poured ice-cold water out of our boots and cursed the thick summer fog that impeded our search, but the tireless Gennadiy kept searching and searching. Finally an airstrip was selected. The bulldozer's engine let out a roar. Guided by Alimov's skilled hands, its scoop and tracks got to work. The entire station collective too was ready to take up picks, shovels and crowbars to assist in the effort. But Alimov delicately refused these offers and sat down again behind the control levers.

It must be confessed that few veterans of the drifting research station believed this enterprise would be successful. The memories of exhausting physical labor on an airstrip were fresh in everyone's mind--work that continued about a month, day after day without a single break.

But Alimov allowed no one into his eparchy, and somehow, in September, he reported in simple, matter-of-fact fashion that the airstrip was finished.

"When the frosts arrive we'll get busy rolling it..."

This meant that the surface of the future airfield was completely leveled--the holes and slush areas were filled, the tops of the mounds razed. Few people believed him then--everything had gone so poorly during the selection process. But it all turned out to be actually true, and even the hardened skeptics were speechless.

The frosts hit and again Alimov was in the cab of his bulldozer. Often skipping lunch and dinner, not getting enough sleep, he worked on the airstrip. In a week the airfield was ready to receive aircraft. Yes--a real airfield with a smooth strip that extended long and wide, with electrical start capability, a large illuminated "Ackermann" for unloading airplanes, and service huts for directing flights. It is absolutely unbelievable to think a single individual could accomplish almost all of this. The truth of the matter is that he's not simply a specialist, but a master, with "golden hands," although a novice with regard to drifting research stations. Actually, although he's a novice at the North Pole stations, he is an experienced polar expeditionary, having worked 10 years at Providence Hydrographic Base of the hydrographic enterprise of the Ministry of the Merchant Marine. He has participated in many winter surveying expeditions along the Chukotka coast and is on friendly, familiar terms with almost every technician. But the most important thing is that here is a man who simply cannot sit idle. It is by no means an accident that one of the little huts at the airfield was soon adorned with the inscription--"Alimovo Airport." This is the way we expressed our gratitude to this fine fellow.

Then came that thrilling moment. In the dark night sky with the bright little painted dots of the constellations you could hear engines roaring, and above our ice floe flew by that tireless worker of the arctic skies--the Il-14. Rocket flares--white, green and yellow--soared up into the sky in our welcoming salute. A turn. Landing gear coming down. The landing.

"A fine landing strip!"

This was the opinion of the chairman of the acceptance commission for the airfield, Honored Navigator of the USSR V. Udalov. In agreement with him was Noril'skiy Airport flight director S. Petukhov, arriving on the very same plane to direct air traffic over our station.

Alimovo Airport is open.

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YAK-42 UPDATE: NEW ROUTES, FUEL ECONOMY

Moscow VOZDUSHNYY TRANSPORT in Russian 5 Jan 82 pp 1, 2

[Article by I. Troitskiy, correspondent: "The Yak-42 In Operation"]

> [Text] The Yak-42 aircraft has celebrated the beginning of 1982 by introducing new routes. Early in January, crews from Bykov headed by Order of Lenin bearer L. Filatov and flight subunit [podrazdeleniye] commander G. Vasilyukhin flew passengers to Izhevsk and Voronezh.
>
> Thus, a little over a year from the day they became operational, Bykov airline crews are flying Yak-42 aircraft on regular passenger flights to six destinations.

One of Aeroflot's new arrivals for the 10th Five-Year Plan was the Yak-42 aircraft. On 22 Dec 1980 the plane made its first passenger flight from Moscow to Krasnodar. Airmen of the Bykov airline dedicated the flight to the then-forthcoming 26th CPSU Congress.

In what way has the new airplane's first year of operation over these routes been significant?

First of all--with respect to precisely calculated indicators. The Yak-42 currently flies 22 routes. From Bykov crews fly to Krasnodar, Nal'chik, Poltava and Kherson. From Krasnodar to Moscow. Yak-42 routing has become international--there are flights from Donetsk to Prague, from Leningrad to Helsinki.

One out of every six passengers travelling on the Bykov airline in 1981 made the trip on a Yak-42--200,000 in all. Over 20 tons of mail and about 150 tons of freight were shipped. The flights are highly regular and quite safe.

We all know how airline passengers value time. So they got just what they wanted in the procedures adopted for carting baggage in containers and effecting ticket registration at the same time they board. The passenger need not wait while his baggage is being unloaded. We often have occasion to observe just the opposite--the baggage, delivered by conveyer, waits for the passenger.

Those flight personnel entrusted with operating the new airplane have formed a collective that has become quite well established. Five aircraft commanders, fifteen copilots and nine flight mechanics have been brought in during the year. Crews from the Ukrainian, North Caucasus, Leningrad and Krasnoyarsk administrations have also undergone Yak-42 flight training in Bykov. The Bykov crews continue to develop their expertise in flight operations. More than half the aircraft commanders are flight-qualified with respect to the minimum first-category standards of the International Civil Aviation Organization. The rest are undergoing intensified training in final-approach execution under adverse weather conditions utilizing the SIV-1-42 blind.

V. Fedorov, chief engineer of the technical aviation facility, discusses how "the ground" guarantees the new aircraft's proper operation in the air.

"Our technical aviation facility conducted practical probationary training in Yak-42 operational and periodic scheduled maintenance for more than 400 engineers and technicians from 34 airlines."

Operational maintenance shops were set up in AiREO [expansion unknown] in timely fashion, and maintenance routines were established for the amount of working hours. Nineteen test rigs were installed in the laboratory testing shop to monitor Yak-42 equipment operation. Special stepladders were designed and manufactured for servicing tail sections and lateral engines. The sketches for these stepladders were sent to other airlines.

In order to enhance technical maintenance quality, working charts were introduced for specialists engaged in operational kinds of periodic servicing. We are now completing development of the zone method for maintenance, which promotes more effective work. Our efficiency experts introduced 47 proposals, 32 of which were adopted and led to an increase in the quality of technical servicing. In general, the entire collective has been working enthusiastically.

However, many questions are still unresolved.

We have amassed a rich experience over the year of Yak-42 operation with regard to flight performance, technical maintenance and commercial operation. The time has come to develop permanently operative documents based on this experience which would regulate all forms of activity.

Experience has shown that the trailer-loader for containers produced by Plant No 85 functions unreliably. Just recently in Bykov, for example, its hydraulic system has broken down 15 times. It's a great deal of trouble to have to call out a work brigade from the plant to effect reliable repair.

Civil Aviation Administration senior engineer Ye. Makarov adds that flight operations personnel have made serious accusations with regard to the quality and speed of work performed by work-guaranty brigades from other supplier plants. For example, 15-20 days are required to eliminate a slight defect. Aircraft idle time like this costs the airline dearly.

There is yet another problem area. In his speech at the November 1981 CC CPSU Plenum, Comrade L. I. Brezhnev emphasized the necessity to utilize every tool, every incentive for economizing with regard to fuel and energy resources. One feature of the Yak-42 is the fact that it is highly economical--fuel expenditure per passenger-kilometer is significantly less than for other, similar aircraft. It takes 16 minutes to refuel the Yak-42 with 13,000 liters of kerosene. The expenditure norm established during operational testing is 1,870 kilograms per hour. In actual practice a greater amount is expended.

We are sitting with A. Kaperskiy, first deputy commander of the Bykov airline, and discussing the fuel expenditure chart and its analysis. The chart has columns indicating "ground" prior to take-off, altitude gain, horizontal flight, descent for landing and "ground" after landing. It includes a scrupulous accounting of minutes and kilograms.

What is the deciding factor with respect to fuel economy?

The most important thing is level of flight. Why don't we keep within the norm? Because the in-flight norm is established at 9,600 meters. This level is currently either closed altogether for the Yak-42, or the aircraft must relinquish it during flight to higher-velocity aircraft and descend to a lower level. It is clear that fuel expenditure is increasing because of this. It is therefore specially emphasized in that portion of the chart indicating measures to be taken that we "resolve the problem of Yak-42 flights at the 9,600 meter level." There are other ways to economize too. For example, the fuel expenditure norm for engine testing and taxiing on the ground is established as 350 kilograms per flight. Under towing conditions the engines will operate 8-10 minutes less. Well--this is 150 kilograms of fuel. We also recommend that flight controllers reduce the standing time for aircraft with engines running prior to actual take-off. To accomplish this, those who direct taxiing and holding pattern activities will have to coordinate their operations more precisely. Timely commands directing occupation of the assigned flight level play a great role, as does making the descent without intermediate plateaus.

The crews, in turn, are strongly recommended to adhere to the most economical flight procedures. For some reason the "Yak-42 Operations Manual" contains no charts or tables that show the best operating conditions for flight at various altitudes.

Other miscalculations in the sphere of economy could be named as well. For example, an airplane arrives at Bykov from Krasnodar and the tanks contain 2-2½ hours worth of fuel. They've carried too much on board, expended fuel for no reason. Another example--passenger traffic in the southerly directions naturally decreases in the winter period. Frequently a 120-passenger plane leaves with 30 or 40 people on board. It has been proposed that the amount of cargo transported be increased, but special cargo containers are necessary for this.

Obviously there are other ways of economizing on fuel as well. We can find them if we make a thorough, comprehensive analysis of the new airplane's operational record.

At a technical flight conference held recently, discussion took place regarding all the various facets of Yak-42 operation. A clear and precise conclusion was reached--the new airplane had, figuratively speaking, "risen up on its wing." Regular passenger flights for the Yak-42 are being planned the beginning of this year from Moscow to Izhevsk, then to Voronezh and Tashkent. Preparations are being made for airmen from Moldavia, Krasnoyarsk and the Volga region to receive the aircraft. New flights, new routes are awaiting the Yak-42.

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FUEL LOSS STATISTICS FOR EXTRA LANDINGS

Moscow GRAZHDANSKAYA AVIATSIYA in Russian No 1, Jan 82 p 20

[Unattributed report: "An Extra Landing: What Does It Cost?"]

[Text] Successful resolution of the tasks advanced by the 26th CPSU Congress for the 11th Five-Year Plan depends largely on improving economic efficiency in production. One important lever for increasing efficiency in civil aviation is further improvement in the use of our fixed production capital, and primarily its most active part--the aircraft inventory.

Under conditions of maximum commercial load and optimal route distance, the highest productivity for flights is achieved on direct routes not involving intermediate landings. This is in accordance with the interests and convenience of passengers, who are brought to their destinations more rapidly. It is not by chance that in the schedule of aircraft movements for 1982 more than 80 percent of domestic flights on main routes have been planned as nonstop flights or flights with only one intermediate landing.

It is essential to know that each unplanned landing by an aircraft leads not only to holdups for passengers en route but also to extra consumption of material resources, including aviation fuel. The fuel alone used to alter an aircraft's attitude when making an extra landing with the subsequent takeoff and climb to cruising altitude is as follows for the heavy aircraft: Il-62, 8 tons, Yak-42, 1.8 tons, Tu-134, 3.2 tons, Tu-154, 6 tons, Il-86 10.3 tons.

Comrade aviation workers! Strive to complete flights according to schedule. High regularity in flights is a source for saving reserves of equipment and fuel in air transportation and one of the bases of our profiable operation.

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BRIEFS

TU-134 SERVICING IVANOVO--Ivanovo, 6. The beginning of the new year has brought a geographical expansion of air routes for residents of Ivanovo. Still another route has been introduced--the 15th--connecting the city of the first soviet with Voronezh, Krasnodar and Baku. The Tu-134 aircraft is servicing this route. From the first of January Ivanovo residents have found it more convenient to fly even as far as Ul'yanovsk. Inhabitants of the textile region no longer need travel "with transfer" to get to this city on the Volga, but may fly "their own" An-24. The trip to Naberezhnyye Chelny and Chelyabinsk is shorter. The Tu-134 airplane has replaced the An-24 on this route. [By V. Byakovskiy, oblispolkom instructor] [Text] [Moscow PRAVDA in Russian 7 Jan 82 p 6] 9768

AIRPORT TERMINAL OPENS--Kazan', 2. The first section of the "Kazan'-2" airport terminal complex hospitably flung open its doors. Ready for passenger service are a spacious waiting room, ticket counters, check rooms... With the "Kazan'-2" complex becoming operational, flying opportunities in this autonomous republic will have increased significantly. Even today the airport terminal complex is servicing more than a third of the passengers who fly in and out on the spacious Tu-134, Tu-154, Il-18 and other aircraft on more than 30 routes. [By R. Sabirov, PRAVDA correspondent] [Text] [Moscow PRAVDA in Russian 3 Jan 82 p 6] 9768

FUEL OUTPUT IN TYUMEN' OBLAST--Tyumen' airmen began 1982 with a good frame of mind. All indicators showed that the plans of the past year had been fulfilled ahead of time. Last year's successes have provided a fine base for this year's start. In a highly enthusiastic environment, the collective is now directing every effort, all its skills and experience towards implementing the initiatives of the working people of Tyumen' Oblast with regard to early output of one million tons of petroleum and one billion cubic meters of gas per 24-hour period. [By S. Vladimirov, correspondent] [Text] [Moscow VOZDUSHNYY TRANSPORT in Russian 5 Jan 82 p 1] 9768

CZECH INSTALLATION OF AIRCRAFT SIMULATOR--A group of Czech experts completed equipment installation for an L-410 aircraft simulator in the city of Yakutsk. Several years ago this aircraft set out on routes within the autonomous republic and its performance spoke well in its favor. One of the basic problems related to operation of the new plane was crew preparation for working under the adverse conditions of the north. Yozef Frans, head of the team of Czech experts, stated: "Our simulator makes use of the latest achievements in technology. We have provided for full flight simulation." He added: "Knowing how the pilots of Yakutsk are waiting for the simulator, we tried to cut down on the installation time. We are very grateful for the assistance rendered us in Yakutsk and for having been furnished the environment necessary for high-quality work. We would like to offer our special thanks to a key simulator systems specialist, engineer I. Utkholov." Another group of Czech specialists will be arriving soon for adjustment of the simulator. It will be ready for operation early this year. [By V. Solovarov, Yakutsk airline flight mechanic] [Text] [Moscow VOZDUSHNYY TRANSPORT in Russian 5 Jan 82 p 2] 9768

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MOTOR VEHICLE

TIRE PRODUCTION, RECYCLING EXAMINED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian
No 10, Oct 81 pp 107-131

[Article by Ye. K. Gamm, chief engineer of the Tire Repair Plant, Karaganda: "The Second Life of a Tire"]

[Text] Rapidly growing transportation requires an increase in the supply of tires which tire makers are not in a condition to cope with at the present time. Decreasing this shortage by retreading tires is an urgent task. The repeated use of materials-intensive tires is proposed as the solution. This path does not require great expenditures.

It is known that 7.5 million tires were retreaded in 1978 in the USSR. According to data of the NII[scientific research institute] of the tire industry, approximately 35 percent of motor vehicle tires removed from operation are being retreaded. For comparison let us cite data for several countries where tire retreading has been most developed. In the United States 20-25 percent of the tires manufactured are retreaded, in the FRG--25-28, in England--26-30, in France--6-10, in Italy--40-43 percent.

The tendency toward a decrease in the number of tires going for retreading is connected with the production of tires of fundamentally new design (radial and two-ply passenger car tires). They have increased technical and economic indicators but are inferior to the traditional ones (biased) in maintainability.

As is evident from table 1, radial tires are selected for retreading 1.5 times less than biased ones. However, this figure decreases considerably because tires are accepted with deviations from the standard because of the lack of instruments to detect hidden defects. However, the problem is not even with the instruments or methods for determining repairability, but in the real fear of being left without a repair stock, of ruining the plant's plan. On the one hand everyone understands that retreading tires in accordance with such an arrangement simply entails the expenditure of materials and resources, but it is impossible to decrease the plan of the enterprise. As a result, a patient and probably rich customer must pay all costs.

The proportion of radial tires in the total output is growing rapidly. In the next ten years they may finally supplant biased ones. Radial tires guarantee durability, fuel economy, comfort, and coupling properties at high traveling speeds. However, fewer of them are selected for retreading because the strength of the tire frame is depleted when the tread wears out. The introduction of radial tires creates considerable technological difficulties in retreading them.

Table 1. Indicators for Selecting Tires of Various Designs for Retreading at the Karaganda Tire Repair Plant

Indicators	Tire Design Biased	 Radial
Total of worn-out tires, in thousands of items	26.0	18.0
Of them, those turned over for retreading, in thousands of items	10.0	6.5
Rejected for hidden defects in the treatment process, in percentages	4-6	14-16
Percentage of all of the worn-out tires that are suitable for retreading	32-34	20-22

The USSR produced about 62 million tires, including 13 million radials, in 1980. The proportion of biased tires is already decreasing in Western Europe. In the United States a preference has been shown for biased belted tires, but they also are now moving toward the production of radial tires. Only good road conditions, high efficiency in tire performance, a real economic incentive and new technological methods permit the maintenance of a relatively high percentage of tires selected for retreading. Thus, the appearance and rapid spread of modern tire designs has significantly complicated tire retreading and has decreased the flow of worn-out tires to tire repair plants.

Cases of Incentives

No one doubts the high economic effectiveness of using recaps. The price of a recap is approximately 25 percent of the price of a new one, and tire life is standardized by OST[all-union standard] and guidance documents to within 50-60 percent of pre-repair ones. As a result, the customer is ensured of a clear profit of about 25-35 percent of the cost of a new tire.

Operational, economic and legal interrelationships between customers and producers of recaps have formed, at first glance, quite clearly in full conformity with the principle of socialist economic development. Motor vehicle facilities and organizations having motor vehicles on their balances are lowering the plan for turning tires over for retreading to a specific tire repair plant. Based on this, a plant production plan is being put together which takes into account the spontaneous, but on the whole, predictable turnover of tires for retreading by private motor vehicle owners. Both the turnover of worn-out tires and the receiving of recaps are regulated by agreements based on the orders of Glavkhimsnabsbyt[Main Administration for the Supply and Marketing of Chemical Industry Products] and other documents. One would think that there were no grounds for concern. However, on closer examination, there have come to light a number of incidents inhibiting the retreading of tires, primarily from a qualitative standpoint.

A tire repair plant retreads two categories (I and II) of tires according to the decrease of the guaranty life because of a deterioration in the condition of the frame. Conversely the wholesale factory price changes, i.e., the price increases with a deterioration in the quality of the product. Economic conditions create abuse by the artificial transfer of tires into group II. The profits are greater while the guaranty commitments are lower.

Strict planning in the "plant-motor transport establishment"interrelationships frequently turns into an economic curiosity. Motor transport establishments under the pressure of economic sanctions , the threat of losing bonuses and troubles from national control organs for not fulfilling the plan for the turnover of worn-out tires for retreading, at the end of the quarter remove tires from wheels that are not worn out. A spot check of the remaining tread height of tires turned over for retreading to the Karaganda Tire Repair Plant in 1978 showed that the remaining tread life of truck tires was approximately 14,000-16,000 kilometers or 20 percent of the average life of new tires. The plant has no interest in stopping the turnover of tires that are still good. The rigid dependence of the plant's prosperity on the receipt of a repair stock is well-known to all tire repairers.

The tire repair plants are economically not interested in increasing the main qualitative indicator of a recap--its longevity. Prices stimulate a quicker decrease, rather than increase, in quality and the requirement for a guaranteed level of quality does not achieve its goal. Established tread life guaranty norms after retreading are easily achieved in reports by the proper selection of data whose trustworthiness is never checked. There are adequate levers of influence on customers to prevent annoying complaints. Inspections by state laboratories for the supervision of standards have a formal character and also cannot change anything. Not every manager of a tire repair plant is oriented toward the final result, the interest of the customer. A psychological reorientation which must rest on a firm foundation of economic interest is necessary to make this so.

An analysis of the reports on the life of recaps makes one sad. Tread life is not lower for plants with the lowest level of technology and an indifferent attitude toward the quality of the accepted repair stock and sometimes it even exceeds the corresponding indicators of the leading plants.

The independence of the price of a recap from its consumer qualities and the legalized irresponsibility over the condition of the tire shell actually frees the tire repairers from responsibility for the life of a recap. When we talk about legalized irresponsibility for the condition of the shell, we have in mind that point in GOST which frees the tire repair plants from the responsibility for the premature wearing out of recaps not at the place of repair.

The task has been set of achieving a tread life for recaps on the average throughout the country of 60-65 percent of a new tire. At the same time the tread life of new truck tires reaches approximately 90,000-92,000 kilometers. This means that the average life of recaps must be 54,000-60,000 kilometers. Is this task feasible? At the present time it is within the power of only the most advanced plants and only for the first category of retreading. Satisfactory reports do not reflect the true state of affairs.

What must be done to create a dependable foundation for fulfilling the established task in the next 10-15 years? The answer cannot be simple, and the considerations stated below are not so much answers as materials for discussion.

Technical and Economic Questions

According to technology, tire retreading is possible when the shell is in good condition. The requirements are very strict in the countries of Western Europe where there is stiff competition between the producers of new tires and the worn-out tires accepted for retreading. The tire retreaders guarantee a recap life of from 60 to 100 percent of the pre-repair tires. Naturally, such a tread life can be ensured only for very solid frames.

In a socialist economy things are governed by economic expediency determined not only by a comparison of proportionate costs, but also by the scarcity of new tires. In our view, GST reflects the level of today's requirements for repair stock. However, it should be known that demands are noticeably relaxed in practice. Because of this the effectiveness of using recaps goes down.

A systematic analysis of the tread life of recaps at the Karaganda Tire Repair Plant shows that with comparatively stable retreading technology the fluctuations are very great--from 1,000 to 70,000 kilometers. The most typical causes of the early wearing out of recaps are cracking and ply separation of the shell, separation of the breaker strip, destruction at the place of repair, peeling of the tread.

The conditions for receiving complaints about recaps as determined by the GST "Retreaded Pneumatic Tires" also promote a lowering of the requirements for the quality of the shell accepted for retreading. The plant acknowledges a complaint only for the premature breakage at the places of repair and does not bear the responsibility for the low quality of the shell. It is not difficult to veil the blemishes of retread repair.

The very statement of the question is fundamentally important: what is a recap? Is it a repaired old article or an article produced again? The level of demand depends radically on the answer. The first wording permits the tire repairers to bear responsibility only for repair but frees them for responsibility for breakages not at the place of repair. This is a comfortable loophole for careless people which is used quite often. The second wording radically changes the attitude toward recaps. In this case the tire repairers are fully responsible for tire tread life. This, in our view, is the only correct approach which is confirmed by long international experience.

A sharp increase in the receipt of suitable repair stock can be provided by improving the design of tires with a view to increasing their repairability.

The time has come when designing tires to assess the national economic impact of using tires with a combination of technical and economic indicators including their repairability and post-repair tread life. This indicator is compulsory and important in the FRG. In the USSR tire designers and tire technicians are not at present oriented toward fulfilling the elementary requirements for the realization for the repairability indicator. Thus, the popular 240x508 size KI-63 tires are little suited for retreading because of a failure in its metal cord breaker strip. The situation is even worse with Zhiguli passenger car tires. The situation is not much better with the most popular 260x508 size model IN-142B tires for the KAMAZ and ZIL-130 motor vehicles.

A change is also necessary in the principle of accepting tires for retreading when the entire repair stock in the planning system is purchased from tire owners at prices reflecting the condition of the tire shell or its tread life. The tires must be recapped and sold in three grades with a corresponding decrease in operational potential. The first grade consists of tires with a tread life guaranty of not less than 80 percent of new tires, established for all types of transportation without limit. The second grade covers tires for motor vehicle and tractor trailers, agricultural vehicles and other low-speed means of transportation. The tread life guaranty is up to 50 percent of the pre-repair tire. In the third category are tires for non-mobile carts like beer and kvass casks, carts with welding equipment, compressors, pumps, etc. They are now supplied with new tires which are obviously unsuitable. Recaps are supplied to centralized facilities from where they are distributed in accordance with their purpose.

Worn-out tires of privately-owned motor vehicles are bought for retreading in accordance with the very same principle as the right of immediately purchasing suitable recaps from the exchange stock. It is advisable to organize a tire center with all types of service for owners of private vehicles at all tire repair plants, branches, and acceptance and exchange points. A combination of tire retreading and tire service will permit it to be placed on an industrial basis.

A significant reserve for increasing the flow of the repair stock is the development and introduction of technology to replace the damaged layers of the metal breaker strip. This will increase somewhat the labor and material expenditures but when the tire shell is good they pay for themselves fully. The Italian firm Marangoni Pneumatichi, the Austrian firm Lutts and a number of others are solving in various ways the problem of replacing the metal breaker strip. The introduction of one of these methods at our plants will permit an additional 1-1.5 million tires to be recapped.

We will dwell on several technological problems whose solution determines the quality stability of recaps. Over a period of 18 years, tire retreading technology at a number of our plants has achieved a level commensurate with that found in developed capitalist countries. However, the attitude that tire repair is something secondary and auxiliary lowers production efficiency and responsibility to customers. The assembly line, as a rule, is dirty which is totally intolerable for vulcanized surfaces. Precision in selecting the amount of tread material and overlap accuracy are ideas rather theoretically well-known. Stable vulcanization parameters and the technical elaboration of conditions for obtaining optimum physical and mechanical indicators in the "old-new tread" splice are peculiar only to advanced plants. A step-by-step control system has effectively not been implemented, partly because of the special character of production. This leads to a lax attitude toward technical documentation and requirements. Frequently the one doing the work also does not present all the consequences of a small break covered by superimposed tread or a scrap of rubber. Questions of step-by-step checking, the stimulation of operational quality independent of the situation of controllers, and cross-checking primarily require standardization at the sectorial level. The scattering of plants throughout departments complicates the solution of these problems.

Organizational Questions

What should a tire repair plant be--large or small? Those supporting the enlargement of plants cite sufficiently weighty arguments in their favor. Indeed, a comparison of the labor productivity, technological discipline, production efficiency, and production cost indicators, as a rule, favors large plants.

Let's analyze the personnel roster of the medium capacity Karaganda Tire Repair Plant. The ratio of main to auxiliary workers is highly unfavorable: one to one. There must be one engineering and technical person or white collar worker for every four workers and, at the same time, a number of engineering functions are carried out extremely poorly because of a shortage of personnel. Thus, a two-person technical division is forced to deal with a wide range of questions: development, the introduction of technological and standardizing documentation, the working out of new technological methods, the introduction of new equipment, the planning of industrial equipment and small-scale mechanization, etc.

It is interesting to compare the labor productivity of an Italian tire retreading firm with the Karaganda Tire Repair Plant. Starting from the output plan of the central affiliate of the Italian firm in Roveretto and the number of people, each worker must process 10.8 tires a day. The Karaganda plant, not counting the personnel of the boiler and receiving and exchange centers, has an output of 4.1 tires per worker. There are no grounds for thinking that the labor productivity of the Italian workers, directly involved in industrial operations, is significantly higher than ours. The reason must be sought in the totality of the organizational and technical advantage of the Italian firm: high equipment dependability not requiring large labor expenditures to maintain it in fit condition and repair it; the installation and adjustment of equipment by specialized organizations; the provision of spare parts and assemblies; the high professional level of maintenance personnel due to a low turnover of personnel and a well-organized training system; a smooth shift operation; the delivery of materials of high technical readiness; a relatively small proportion of management personnel and accountants.

The high labor productivity at tire repair plants in Europe and the United States is achieved both at large plants (2-3 million recaps a year) and also at numerous small plants and workshops.

It also seems that in our situation it is not right to raise the question of large or small plants. Of its very nature tire retreading along with tire service must be as close as possible to the customers. Therefore, a plant's capacity is determined by the economic radius of repair stock and recap transportation, the convenience to private motor vehicle owners, and other considerations. Even with the significant decentralization of retread repair production in Kazakhstan, transportation expenditures for a tire from Dzhezkazganskaya, Gur'yevskaya and Turgayskaya oblasts is 2.5-5 rubles, i.e., 15 percent of the tire's wholesale factory price. The transport of outsized repair stock presents great inconveniences to a railroad that is sufficiently loaded. The specialization of retread work by plants increases shipping distances even more. The entire gain from the centralization of production will be devoured by excessive transportation costs.

How, in the final analysis, must the reorganization of tire retreading in the country be completed? In our opinion, the following steps are necessary:

--the creation of an all-union production association for tire retreading and tire service within Minneftekhimprom[Ministry of the Petroleum Refining and Petrochemical Industry];

--the creation of zonal production associations with a sufficiently wide network of branches performing an entire complex of tire retreading and tire service. Tire service centers are to be created, in addition, at all reception and exchange centers;

--the organization at zonal association lead plants of production organizations for construction-installation and repair work, for the production of industrial equipment, means of small-scale mechanization and non-standard equipment.

--the creation at the all-union association of a scientific research and planning and design institute for the tire retreading industry, uniting the scientific and design forces now scattered over numerous institutes and organizations.

The mixing of rubber and the preparation of tire repair materials up to maximum industrial readiness is concentrated at the zonal association's lead plant. A sufficiently powerful staff for operational production management and long-range planning of technical and economic strategy is created here. The centralization of accounting and calculation work and bookkeeping operations will create a favorable base for introducing high-class computer technology. Moreover the branch's management and accounting staff is undergoing a major decrease to the level of shop personnel carrying out line and initial accounting functions.

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8524
CSO: 1829/85

MOTOR VEHICLE

BRIEFS

METHANE GAS ENGINE--When man invented the motor-car, he little knew how much trouble it would cause. In the United States, it is pollution agent number 1. Reportage about Soviet research into new types of engine which cause less damage to the environment. The ZIL-130 lorry is being used in tests with methane gas as fuel. A hundred of them were built last year suitably modified, and are in use in Lvov, Berdichev and Moscow, where there are gas filling stations. This first batch of 100 lorries can also be run on petrol. Advantages of natural gas as fuel. Serial production of motor vehicles using gas is to begin this year. In 1982 (?5,000) will be built; in 1983, 10,000; in 1984, 35,000 and in 1985, 50,000. Thus, by the end of the 11th FYP, there will be 100,000. They will be used mainly in cities, and so the beneficial effect will be considerable. In the 12th FYP, production will be sharply increased, and by 1990, there will be a million such vehicles. [Text] [Moscow Domestic Service in Russian 1000 GMT 16 Mar 82]

CSO: 1829/161

BAM PROGRESS REPORT FOR 1981

Moscow GUDOK in Russian 25 Dec 81 p 2

[Article by R. Minasov: "BAM: The Year Past, the Year Beginning"]

[Text] The features of a full-blooded operational mainline are more and more distinctly evident in the look of BAM [Baykal-Amur Railroad]. Although through traffic will not open along the entire line for several years, today one can already state with full right that "BAM is operating."

Trains loaded with coal, timber, equipment, building materials, food, and industrial cargo are traveling over the finished sectors of the new, the 32nd by count, railroad. Nine million tons of various freight, of which almost three million were Neryungrinskiy coal, were shipped over the rails of BAZhD [Baykal-Amur Railroad] just in the year which is closing. The first trains with ore came from Southern Yakutiya. The Tynda-Moscow and Tynda-Chita long distance passenger trains and six pairs of local trains are running. Next May they intend to start another two passenger trains along the Krasnoyarsk-Tynda and Lena-Kunerma routes.

Cargo shipments will grow 2.7 times, and passenger shipments one and a half times, by the end of the five-year plan.

The very beginning of 1981 was marked by an important event. BAM received the status of an operating railroad on 1 January. This significantly speeded up and facilitated the construction of the entire railroad, permitted the faster assimilation of the sectors introduced, the recruitment and allotment of personnel and, finally, the more intensive development of the regions adjoining BAM.

It must be said that the problems to be solved on BAM in the 11th Five-Year Plan are more complicated than those which were handled in the 10th Five-Year Plan. In the first place there is the business of increasing the input of fixed capital 2.5 times. Some 600 kilometers of new line had to be turned over for operation in the years 1976-1980, while the figure must be 1,442 kilometers for the years 1981-1985. The volume for introducing non-production structures will grow by an even greater degree.

One year of the 11th Five-Year Plan has passed. Both for the entire Soviet people and for the BAM workers, it has passed under the badge of preparation for the 26th CPSU Congress and the fulfillment of its historic decisions. The builders of BAM have achieved significant labor victories. We will cite only some of them here.

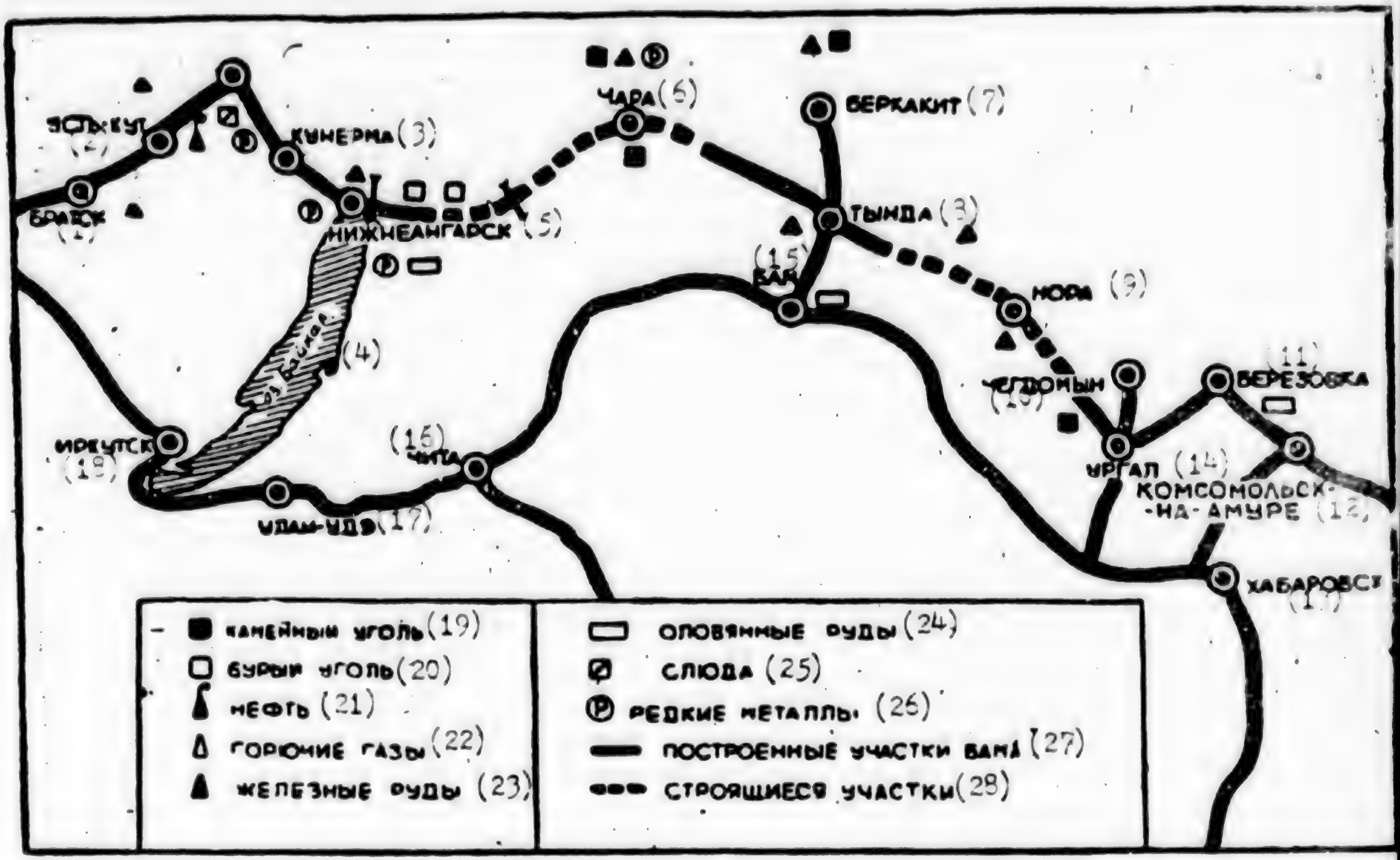


Figure 1.

Key:

1. Bratsk
2. Ust'-Kut
3. Kunerma
4. Lake Baykal
5. Nizhneangarsk
6. Chara
7. Berkakit
8. Tynda
9. Nora
10. Chegdomyn
11. Berezovka
12. Komsomol'sk-na-Amure
13. Khabarovsk
14. Urgal
15. BAM
16. Chita
17. Ulan-Ude
18. Irkutsk
19. Mineral Coal
20. Hydrogenous Coal
21. Oil
22. Gas Fuel
23. Iron Ore
24. Tin Ore
25. Mica
26. Rare Metals
27. Constructed Sectors of BAM
28. Sectors Being Constructed

On the eve of the opening of the 26th Party Congress, the cutting of the nearly seven-kilometer Baykal tunnel was completed a year earlier than the deadline.

They are successfully breaking through and are already close to finishing the four promontory tunnels on the northern coast of Baykal. The cutting of an underground passage through the Severomuyskiy Ridge has been conducted on BAM at an accelerated pace. Dozens of bridges have been built over many rivers, one of the largest of them being over the Olekma.

The rails of the main line have reached the 500-kilometer mark on the Buryatskiy sector, have crossed the Olekma in the center, and are approaching Fevral'sk in the east. A total of 2,250 kilometers of main line (with the BAM-Tynda-Berkakit line) have already been laid on BAM as of today. Some 860 of these kilometers have been turned over for permanent operation, almost 1,000 temporarily, and 390 kilometers have been opened for working train traffic.

However, there are still many undeveloped and simply uninhabited places on the map of BAM. The year 1981 was remarkable for the fact that parties of machine operators, bridge builders and blasters were dropped at many of these places. New settlements have appeared on the map--Ikab'ya, Khani, Olekma, Vel'betkan and others.

However, the main event of the year was the putting into permanent operation of the 260-kilometer Lena-Kunerma sector. This was a clear labor victory for which Leonid Il'ich Brezhnev warmly congratulated the BAM workers.

The Lena-Kunerma complex is not simply 260 kilometers of main track. It is more than 1,000 projects erected by the builders over seven years, 70 kilometers of spur tracks, 78 different bridges, 60,000 square meters of housing and, finally, railroad stations and station facilities in Lena, Tayura, Niya, Kirenga, Ul'kana, and Kunerma.

According to calculations, after the railroad is constructed 40,000 railroad workers will labor on it and, together with their family members, the population of the railroad alone will amount to 100,000 people. They plan to construct for these people 58 well-built settlements with 1.4 million square meters of available housing, kindergartens, schools, hospitals, clinics, and dispensaries. Young Pioneer camps, sport and music schools, trade and social centers, and clubs will be erected.

All of this once again testifies to the fact that the party and state attach paramount importance to the day-to-day living conditions of the BAM workers.

However, let's see how the social program is being accomplished at BAM. Of the 1.4 million square meters of housing, only 310,000 have been turned over at present. One can also cite other figures but, it seems, this is sufficient to arrive at a not very pleasant conclusion--the rate for accomplishing the social program is significantly behind the pace for constructing production-type projects.

Yet the tempo for laying the line could be greater. However, the periodic cutbacks in the supply of materials hamper the movement of the track-laying machines. GUDOK has written many times about the uneven delivery of ties to BAM by the Belogorskiy, Zhana-Semeyskiy, Ushumunskiy, Kaunasskiy and Tomskiy Railroad Tie

Treatment Plants. In all they owe the BAM people 130,000 ties. Because of this the track-laying machine on the west has not reached its final goal for this year--the station of Yanchuy, and another track-laying machine also moves at a "broken pace" on the line to Chara. Is it not time with all severity to lay the responsibility on those who voluntarily or not are placing sticks in the wheels of the track-laying machines?

The bridge builders are causing no less trouble. To be objective it must be said that sometimes they themselves are not guilty--irregular deliveries from the Voronezh and Ulan-Ude plants interfere.

In the coming year construction and installation work will exceed the 1981 volume by 90 million rubles.

They are completing the concreting of the walls and roofs and the installation of necessary equipment at the Baykal'skiy tunnel. It will be turned over for laying the track by the middle of the coming year. They intend to finish the cutting and all four promontory tunnels.

The builders must lay hundreds of new kilometers on the lines Tynda-Chara, Angoya-Taksimo, Tynda-Zeysk, Urgal-Fevral'sk, construct tens of thousands of square meters of housing, erect new structures and projects of a productive and non-productive nature. In short, the tasks placed before the BAM workers, as always, are complex and urgent.

However, we know well the character of frontrunners. They staunchly endure adversities, manfully overcome difficulties and achieve high goals.

Now competition under the motto "who will open Bam?" has acquired a broad sweep at BAM. All the builders are participating in it--the tunnel diggers, bridge builders, machine operators, blasters, track assemblers. Competition is gathering force in honor of the forthcoming 19th Komsomol Congress under the motto "the 11th Five-Year Plan--shock labor, accomplishments, initiative and creativity of youth." The Young Komsomol collectives of the construction project are shouldering new increased socialist commitments in honor of the 19th Congress of the Leninist Komsomol. Specifically, in the crews of A. Bondar', A. Ryabkov, L. Kazakov, A. Bletskiy, V. Aksenov the boundaries have already been clearly determined and the projects and time periods for turning them over for operation have been specifically named.

We want to wish all BAM workers--builders and operators--"good luck in the new year! Happiness and success in your work!"

8524
CSO: 1829/84

NOVOSIBIRSK'S METRO UNDER CONSTRUCTION

Moscow MOSCOW NEWS in English No 9, 7-14 Mar 82 p 9

[Article by Nikolai Nikolayev]

[Text]

Novosibirsk is a major Siberian industrial centre, which attracted attention with the building of its magnificent opera and ballet theatre during the difficult war years and by its creation of the Akademgorodok science centre in the 1950s. It is now claiming new attention with the building there of Siberia's first Metro.

The tunnels are being bored, nearly 1.5 million people look forward to the opening ceremony.

The first leg of the Novosibirsk Metro is thirteen kilometres long and consists of six individually designed stations. The design was contested for by architects from Moscow, Leningrad and the Union Republics. The stations will be lined with Siberian marble, the multi-coloured hue of which is admired by many architects. The first Metro leg will require 80,000 cubic metres of the stone.

The Metro has presented its builders with many unique problems. In consideration of the severe climate, everything has to be built and designed in a special way. For example, the bridge for trains to cross the Ob River will look very much like a tunnel suspended in the air.

There were three possibilities for crossing the wide river: a tunnel under the riverbed, rebuilding the existing bridge, with the addition of a second tier, or building a bridge with a roofed gallery about one hundred metres upstream.

The designers saw the tunnel as the most efficient alternative. But running it through the granite of the riverbed rocks would be both difficult and expensive. Altering the existing bridge was rejected by the designers. So they built a new bridge that looks like a pencil-box. The shape was necessitated by the severe Siberian frosts and snowstorms, which can sometimes rage for several weeks on end. An open-sided bridge would, of course, look more elegant than a pencil-box design, but with trains crossing the bridge every 90 seconds, the latter design could afford better protection, even in the worst weather.

The first trains on the Novosibirsk Metro will start running during the current five-year plan period.

CSO: 1812/65

OCEAN AND RIVER

UDC 629.123.42:621.869.83

DESIGN OF NEW NUCLEAR-POWERED ICEBREAKER-TRANSPORT SHIP DETAILED

Leningrad SUDOSTROYENIYE in Russian No 11, Nov 81 pp 3-7

[Article by N. P. Sytov, N. N. Rodinov, and V. I. Zinin: "Design of a Nuclear-Powered Icebreaking Lighter-Container Carrying Ship"]

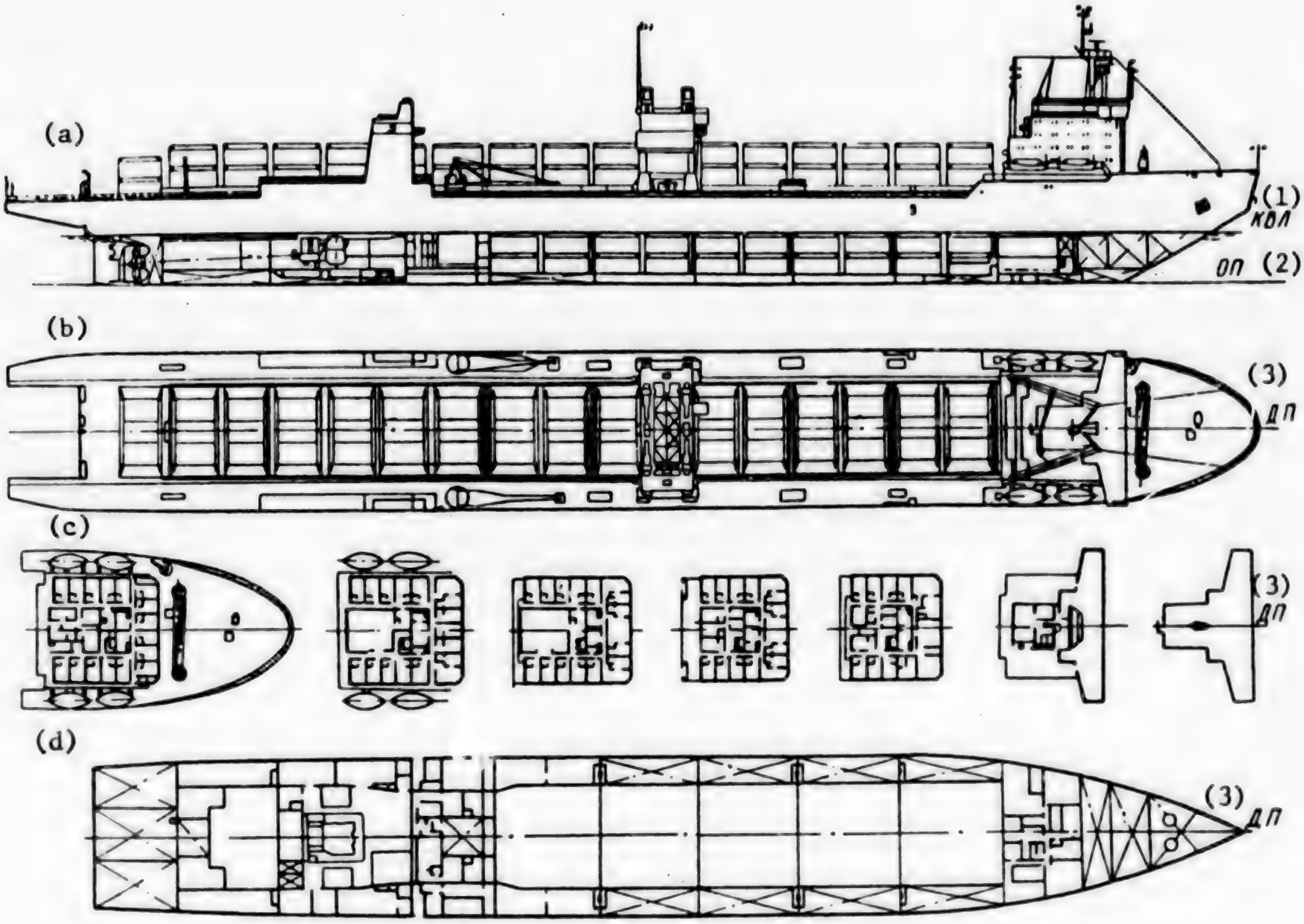
[Text] In connection with the inevitable increase in coming years in the volume of shipping on Arctic seas, a nuclear-powered icebreaking lighter-container LESh-class ship has been designed in our country (see Figure 1 [not reproduced] and Figure 2, next page). The ship is capable of carrying 74 standard lighters or 1,330 containers 6.1 meters long.

Main Elements and Characteristics

Length, meters	
Maximum	260.3
Between Perpendiculars	228.8
Width, meters	
Maximum	32.2
At Design Waterline	31.6
Depth, meters	18.3
Draft, meters	
At Summer Loadline	11.7
When Sailing in Ice	10.7
Displacement with Draft at Summer Loadline, tons	about 61,000
Power Output of Engines, kwt	29,420
Speed in Open Water, knots	about 20

The architectural design class of the ship has the features imposed on traditional LESh-class lighter carriers by conditions of operation in ice. Foremost among these are the icebreaking shape of the forward lines, the inclined sides, and the ship's original stern lines (see Figure 3 below). On conventional LESh-class lighter carriers the transom stern is considerably deeper in the water, which provides a stop for lighters in the transom and protects them against striking the stern during cargo-handling operations in waves. Because this stern shape prevents the ship from traveling through ice in reverse, during design of the lighter carrier its transom was raised some two meters above the waterline and the stern lines were given a spoon shape. For this reason, when the ship travels in reverse it spreads the ice apart.

Figure 2. Diagram of General Layout of Ship: (a) Side View; (b) Top View; (c) Plans of Tiers of Superstructure; (d) Plan of Second Platform.

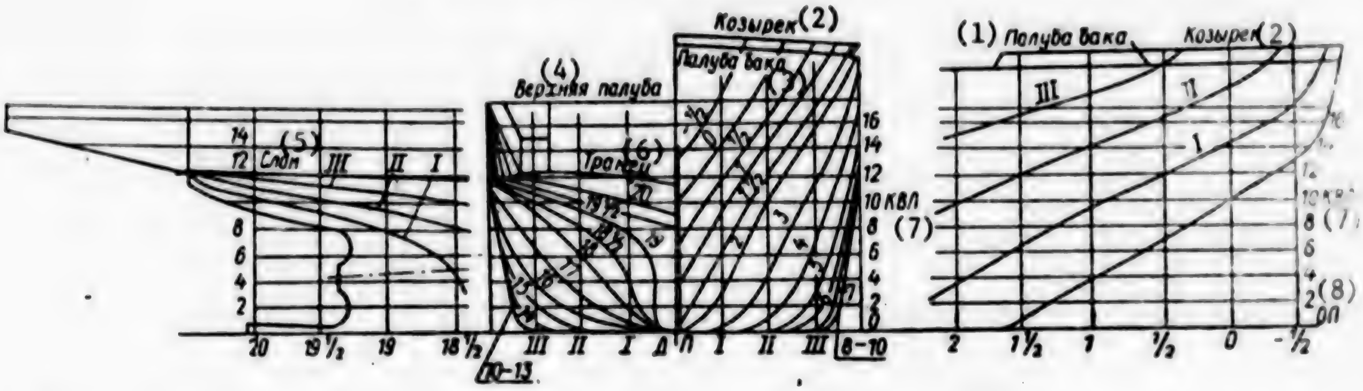


Key: (1) Design Waterline;
(2) Base Plane;
(3) Centerline.

The characteristics of the stern lines make it difficult to stop and center lighters for the crane spreader to grasp them during cargo processing by the technology adopted for LESh class lighter carriers. A special panel design was developed to eliminate these difficulties. The panel is to be secured in an upper "cruising" position and be lowered into the water during cargo-handling operations.

The hull is designed according to the Rules of the USSR Register with ice reinforcement of category ULA for cargo ships (see Figure 4 below). The boundaries

Figure 3. Lines Drawing Plan



Key:
(1) Forecastle Deck;
(2) Apron Plate;
(3) Forecastle Deck;
(4) Upper Deck;
(5) Break;
(6) Transom;
(7) Design Waterline;
(8) Base Plane.

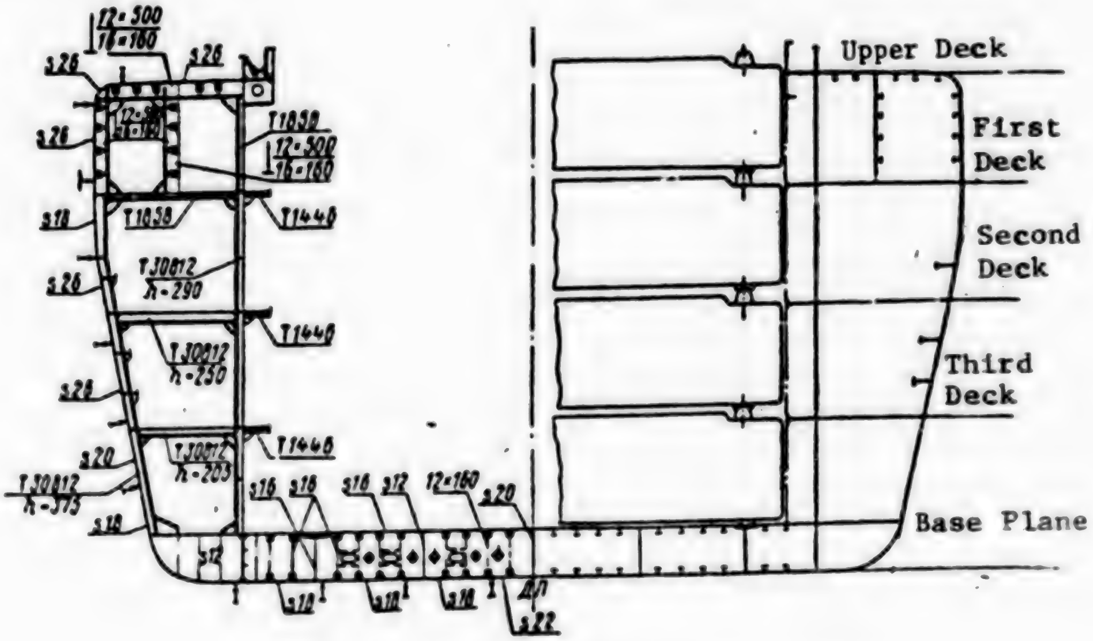


Figure 4. Middle Frame

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of the ice strake are designated on the basis of the specification draft for sailing in ice (see Figure 5 below). The framing system is mixed: the deck and bottom structures are framed on a longitudinal system which makes them work effectively in the general bending of the ship, while the sides and bulkhead are framed on the transverse, which is more appropriate to the nature of loads and strength requirements when sailing in ice.

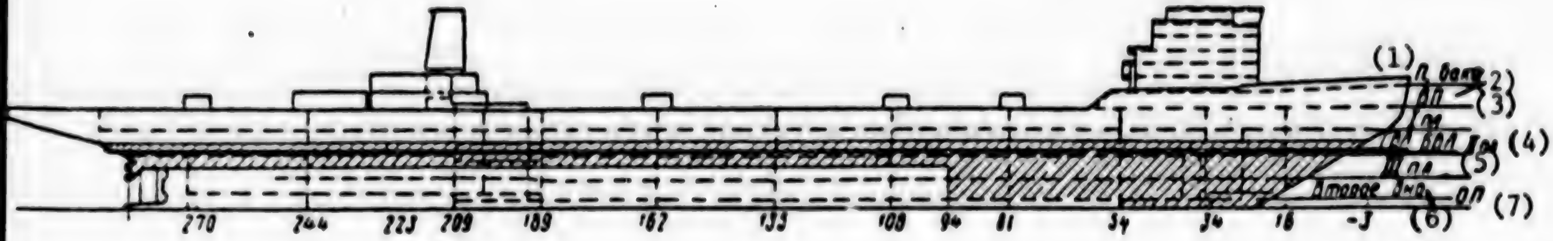

Figure 5. Diagram of the Ice Strake (Hachured): ГВЛ— Load Waterline; БВЛ — Ballast Waterline

Key: (1) Forecastle Deck;
(2) Upper Deck;
(3) First Deck;
(4) Second Deck;
(5) Third Deck;
(6) Inner Bottom;
(7) Base Plane.

In conformity with the requirements of the draft Code of the IMCO on insuring the safety of nuclear-powered ships, special design protection has been envisioned in the region of the reactor compartment to insure the integrity of the compartment in case of a collision or running aground.

The steering gear is also designed for the ULA category of the USSR Register. The rudder blade has three mounts and is protected against ice by an overhang.

The design also handles a question that is unique to sailing in the northern latitudes, controlling icing of the fittings of deck lighters. For this purpose special warming hoods have been developed. They are put on the deiced fittings to thaw them before the beginning of cargo-handling operations.

The architecture of the superstructure with the enclosed wings of the wheelhouse and the interior planning concepts take account of climatic conditions in the Arctic and insure a high level of comfort for the crew.

During the design process considerable attention was given to the ship's ability to pass through ice, a key feature for an icebreaker-transport ship. On the new lighter carrier this quality is insured by combining a powerful power plant, great hull strength, and the distinctive lines of the ship. The ship's ability to sail through ice was tested by duplicated test runs by models built on different scales.

Ice protection was worked out for the propeller complex, which is a variable-pitch propeller in a fixed nozzle. This matter is especially important for this ship because, unlike existing icebreaker-transport ships, it does not have a limiting moment clutch in the main turbogear assembly-reducer-shaft-prop transmission line. Such clutches are installed in shipbuilding practice to protect the main engines against ice moments that occur when the blades of the propeller interact with pack ice. These moments may be 5-6 times greater than the values of nominal turning moments. Because it would be very complex and expensive to build such a clutch for a shaft line that transmits a power of

29,420 kilowatts at 115 rpm's, the designers took a number of steps to limit possible values of ice moments. A fixed nozzle and fins that divert ice to the side were used to create the maximum possible ice protection. Tests and measurements made in ice tanks demonstrated the high effectiveness of this kind of protection. Pack ice seldom gets through the propeller disk, and the dynamic splashes of turning moments that occur in this case are not more than double the value of the nominal moment.

The propulsion plant of the lighter carrier is designed for category UL of the USSR Register, and its automation corresponds to the symbol A2 in the symbol for the class of ships. The steam turbine power plant with interhull separation of steam is arranged in two adjacent compartments. The machine-boiler room is located in the stern off the steam generating plant. The diagram (see Figure 6, next page) envisions use of an elaborate regeneration cycle which heats water at the input to the steam generating unit to 170 degrees C. Superheated steam from steam generating unit (pressure of 3.9 megapascal, temperature of 290 degrees C) is fed to the main turbogear assembly. A steam separator is envisioned to reduce the humidity in the last stages of the low-pressure turbine between the turboprop engine and the low-pressure turbine; this makes it possible to increase the service life of the main turbogear assembly to 150,000 hours. The main condenser maintains a pressure of 7.2 kilopascal.

Condensate from the main condenser is fed by a condensate electrical pump successively through two ejectors (the main ejector and the steam suction ejector from the packing) and the low-pressure heater to the deaerator. Then the feed water at a temperature of 106 degrees C goes to the feeding turbopump, from which it is fed successively through two sections of the high-pressure heater at a temperature of 170 degrees C. Heating is accomplished by steam taken from the main turboprop gear and exhaust steam from the turbodrive of the feed pumps.

The installation of two auxiliary atmospheric condensers which constantly pump outside water is envisioned for putting the main power plant into operation and stopping it and for emergency cooling. When the steam generating plant is taken out of operation the running of the ship is insured by using the water-tube boiler which has a productivity of 50 tons an hour with a pressure of 2.4 megapascal and a superheating temperature of 356 degrees C. In this case the power output of the main turbogear assembly will be about 4,780 kilowatts taking account of the work of the turbogenerators. The main turbogear assembly is a reversible, two-casing steam turbine with three regenerative steam take offs, a reducer gear, a condenser, a throttle-moistening unit, a main thrust bearing, maneuvering gear, and regulating, control, and protective elements. Regulation is done by nozzles: nozzle group I provides power up to 70 percent, while group II provides it from 70 to 100 percent. The reducer gear is designed for twice the nominal turning moment. The main turbogear assembly transmits power to a variable-pitch propeller that is 6.7 meters in diameter.

The use of a variable-pitch propeller was dictated by the specific features of the ship's work in ice, where it is necessary to switch power to reverse, equal to 70 percent of the power of full-speed forward running; where numerous

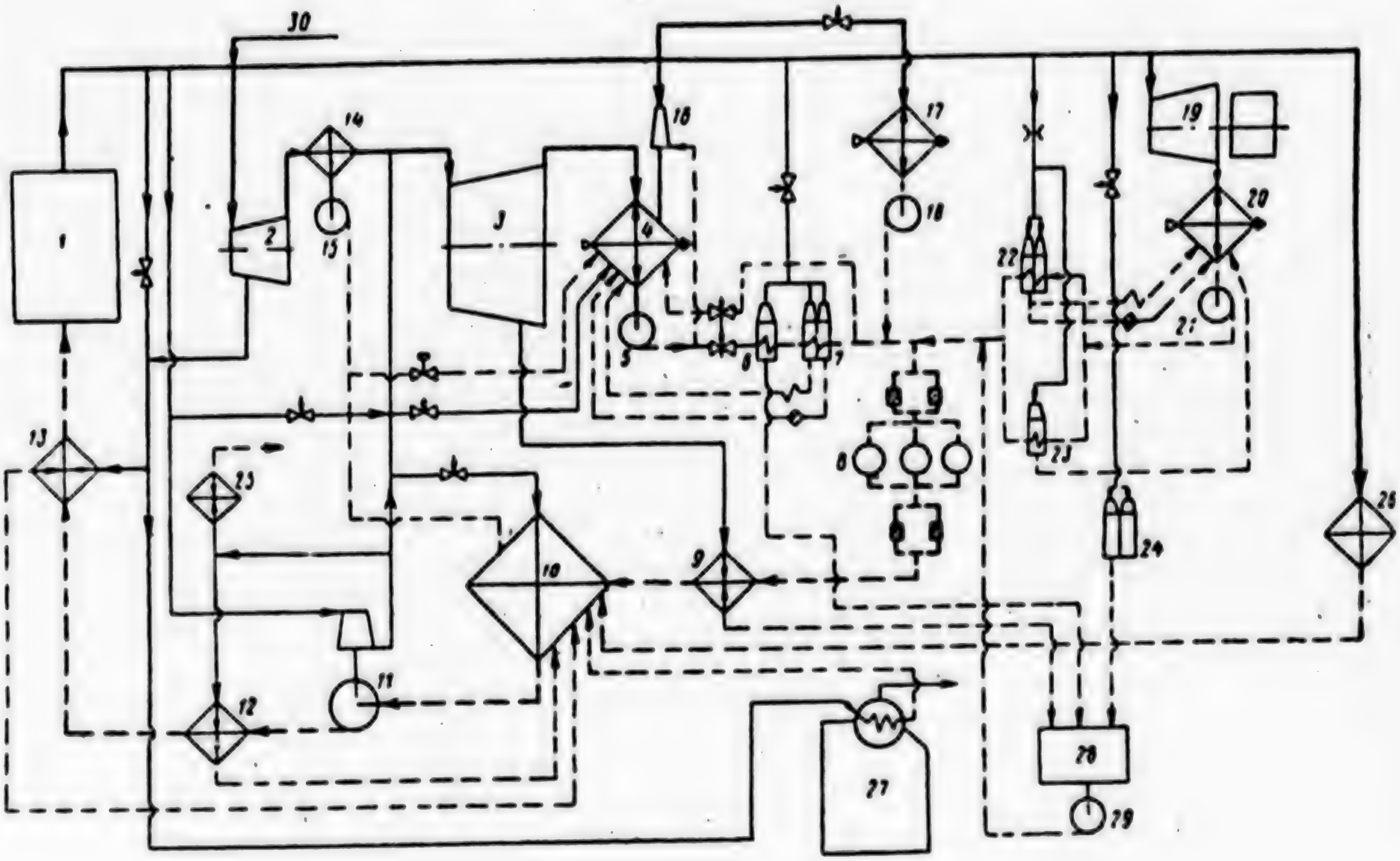

Figure 6. Heat Diagram of the Lighter Carrier's Power Plant: ━━ Main Stream; —— Auxiliary Steam; ▬ ▬ ▬ Main Condensate and Feed Water; - - - Condensate and Drainage.

Key: (1) Steam Generator;
(2) High-Pressure Turbine;
(3) Low-Pressure Turbine;
(4) Main Condenser;
(5) Main Condenser Pump;
(6) Suction Ejecter of Main Turbogear Assembly;
(7) Main Ejecter of Main Turbogear Assembly;
(8) Ion Exchange Filters;
(9) Heater for Low-Pressure Feed Water;
(10) Deaerator;
(11) Main Feed Pump;
(12) Second-Stage Feed Water Heater;
(13) Third-Stage Feed Water Heater;
(14) Steam Separator;
(15) Drainage Pump
(16) Throttle-Moistening Gear;
(17) Cooling Condenser;
(18) Condenser Pump;

[Continued, next page]

[Figure 6 continued]

(19) Turbogenerator;
(20) Turbogenerator Condenser;
(21) Condenser Pump of Turbogenerator;
(22) Ejector of Turbogenerator;
(23) Suction Ejector of Turbogenerator;
(24) Ejector of Fresh-Water Unit;
(25) Fresh-Water Unit Heater;
(26) Low-Pressure Steam Generator;
(27) Auxiliary Boiler;
(28) Hot Condensate Tank;
(29) Drainage Pump;
(30) Pipeline from Auxiliary Boiler.

maneuvers from forward to reverse and back must be made; and, where the ship must operate for prolonged periods in regimes with a broad range of change in the power output of the main engine.

The electric power plant includes three 2,000-kilowatt turbogenerators, two of which operate constantly. In addition, the ship has two 600-kilowatt automated reserve diesel generators and two 200-kilowatt emergency diesel generators. The electric power plant insures operation of the ship power plant in all regimes.

Three-phase alternating current with a voltage of 380 volts and a frequency of 50 hertz was adopted as the principal type of electricity for the power system. Three-phase alternating current with a voltage of 220 volts is used to supply the primary and emergency lighting systems and for living quarters and the galley.

For the main turbogear assembly to operate in ice conditions a system has been envisioned to recirculate outside water. It consists of two side ice tanks connected by a flowover line and bottom kingston valve box. Water is taken for the main turbogear assembly and cooling systems from a common receiving box connected to the recirculation system. The outside water in the receiving box is kept at a temperature of 12-14 degrees C.

The automation system makes it possible to service the power plant from a specially equipped central control station without regular watches in the engine and boiler room and the compartment of the steam generating plant.

Steam is supplied to the main turbogear assembly and other users by a single-reactor modular steam generating plant and pressurized water-cooled, water-moderated reactor. The thermal output of the plant is 135 megawatts. It is a further modification of the Arktika type of unit for nuclear-powered icebreakers that has done well in operation.*

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* SUDOSTROYENIYE, 1976, No 2, p 12.

The basic equipment of the nuclear steam generating plant is mounted in a block on short "pipe within a pipe" stub pipes and is the first contour of the primary coolant. The coolant will be circulated in it by means of pumps, from which the coolant is fed through the pressurized stub pipe to the active zone of the reactor where it is heated. Then the coolant passes through the outlet stub pipes to the steam generators, and from them, after surrendering its heat, it returns to the pumps and the reactor. The quality of the primary coolant and the systems that support the nuclear power plant will be kept within set limits by means of partial circulation through ion exchange filters charged with a mixture of cationite and annonite.

Redundancy is envisioned to insure the work capability of the steam generating plant when particular types of primary equipment malfunction. The design of the nuclear steam generating plant usually makes it possible to localize emergency situations that are possible during operations by available means. The primary equipment of the nuclear steam generating plant is located in a solid, hermetically sealed, rectangular protective shell designed for excess internal pressure and supplied with biological protection. The protective shell is separated into two compartments, the lower, reactor compartment, and the upper, equipment compartment. The reactor compartment is separated from the equipment compartment by biological protection and sealed flooring. The primary and auxiliary equipment of the nuclear steam generating plant will be located in the chambers of the iron-water protection tank. The equipment located in the protective shell does not require regular servicing during operations. When necessary, service personnel will enter the equipment compartment through locks that have airtight doors. Most types of repair work will be done without breaking the seal of the reactor compartment. For major repair work and reloading fuel a removable hatch cover in the roof of the protective shell is envisioned.

In conformity with the requirements of the USSR Register and IMCO Code on safety of nuclear-powered merchant ships, the protective shell will have hull design protection which prevents it from being destroyed during a possible collision with another ship or running aground. It will also have emergency systems to lower maximum emergency pressure when the seal of the first contour and flooding system is broken. These measures permit us to believe that the protective shell will maintain its integrity in any possible accident to the nuclear steam generating plant or ship and will prevent the escape of radioactive contamination.

The ship has three control stations for the power plant: the wheelhouse, the central control station, and the emergency cooling station. The central control station is located on the second level of the aft house above the engine room. Beneath the central control station on the upper deck is a compartment for the stanchions and equipment of the complex of control systems for the technical resources of the steam generating plant, the electrical system, general ship systems, the digital monitoring system, and the radiation monitoring system. The following operations will be performed from the wheelhouse:

- remote-control change in the working regime of the main turbogear assembly and variable-pitch propeller by means of a lever combined with a machine telegraph;

- remote-controlled shutdown of the main turbogear assembly, by a line independent from the remote control system for the main turbogear assembly and variable-pitch propeller;

- emergency shutdown of the primary steam generating plant;

- remote starting and stopping of the firefighting pump;

- remote, separate switching off of ventilation systems (the general ship system together with the air conditioners, the special system, and the system serving the engine and boiler room).

The work regimes of the main turbogear assembly and variable-pitch propeller can be changed from the central control station by machine telegraph instructions. The central control station will be equipped with a control console for the power plant. It will have a television request data display, information panels with mnemonic diagrams, instruments, digital panels, signaling devices, and so on.

All this insures monitoring of the parameters of the power plant and the state of the fittings, equipment, and mechanisms and remote control of two watch systems, the steam generating plant operator and the watch mechanic. An automatic emergency control and protection system has been built which will insure localization of emergencies, switch on the reserve, and switch the steam generating plant to a cooling regime when emergency situations occur in the power plant.

In addition, there will be a television installation which will permit observation of the condition of the main compartments of the power plant.

A number of design and organizational measures will insure reliable radiation safety for the ship and the environment.

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OCEAN AND RIVER

SUCCESSFUL GROWTH OF PRIMOR'YE STEAMSHIP COMPANY RECOUNTED

Moscow MORSKOY FLOT in Russian No 1, Jan 82 pp 17-20

[Article by P. Chernysh, chief of the Primor'ye Steamship Company: "The 10th Anniversary of the Primor'ye Steamship Company"]

[Text] In October 1969 the Ministry of the Maritime Fleet reached a decision to organize the Administration of the Petroleum Tanker Fleet of the Far Eastern Steamship Company in the port of Nakhodka. In January 1972 this administration was reorganized as the Primor'ye Steamship Company, the fourth maritime transportation enterprise in the Far East.

The collective of the steamship company entered its first five-year plan with great labor enthusiasm. On the initiative of the leading crews of the tankers Leninskoye Znamya (Captain V. Kostichev) and Stepan Vostretsov (Captain P. Shvartsman) socialist competition to fulfill the plans and socialist obligations of the Ninth Five-Year Plan ahead of schedule developed on a broad basis in the fleet and shore organizations.

Thanks to the heroic labor of the seamen, the introduction of progressive new methods of work in the transport fleet, and prompt, resourceful solutions to complex problems the steamship company worked consistently throughout the entire Ninth Five-Year Plan and was named a winner in all-Union socialist competition several times.

The hard work of the collective resulted in completion of the five-year plan ahead of schedule, by 7 November 1975 for coastwise shipping and by 1 November for overseas. It should be noted here that coastwise shipping had risen 21.3 percent by the end of the five-year plan, while overseas shipping was up 80.3 percent and balance profit had increased 130 percent. During this time the company's fleet carried 397,000 tons of national economic cargo beyond the plan.

Soviet and party bodies devoted a great deal of attention to the steamship company during its formative period, both with respect to establishing a production base and providing the young enterprise with workers and building housing and social-domestic facilities. A total of 8,900 square meters of housing plus a Pioneer camp were built for employees of the steamship company and the repair and construction office was reorganized as a repair and construction administration.

Consolidation of the entire tanker fleet made it possible to plan and carry out the delivery of petroleum products to numerous customers more efficiently and promptly and to raise the use efficiency of the transport fleet.

The collective of the steamship company began its activities with 39 units in the transport fleet having a total load capacity of 224,700 tons.

The tonnage grew significantly during the steamship company's formative period. New tankers built at shipyards in Bulgaria, Poland, and Finland on order from the Soviet Union were added to the fleet. During the Ninth Five-Year Plan 16 new ships with a total deadweight of 180,000 tons were received.

As the fleet was expanded and updated the sphere of activities of the steamship company also grew broader. Shipment of export cargo and the cargo of foreign charterers increased and the assortment of cargo carried expanded.

Shore facilities were built and strengthened: the ocean petroleum tanker port and the fleet technical servicing depot went into operations and, most importantly, a stable nucleus of command and rank-and-file ship personnel took shape and a stable administrative apparatus capable of resolving the many different questions facing the steamship company was formed.

Ships of the company are rapidly entering the international charter market. Tankers registered out of Nakhodka are beginning to appear at ports in the United States, Canada, Bangladesh, Australia, India, Holland, and other countries, earning the reputation of a business-like partner capable of shipping petroleum products, vegetable oils, animal fats, and other cargo rapidly, efficiently, and economically.

One of the Australian companies, commenting on the work of the crew of the tanker Alekseyevsk, wrote the following: "This is the first time we have not received claims from the cargo shipper, and we believe that this is a credit to the Russian seamen."

At this time delivery of petroleum products to heroic Vietnam occupied a special place in export shipping by the company. The "Bridge of Friendship" between the ports of Primor'ye and Vietnam was established from the first days of U. S. imperialist aggression and operated without interruption.

The crew of the tanker Ambarchik, which made 26 trips to the shores of heroic Vietnam under fire, was awarded the Order of International Friendship for successful performance of missions in delivering national economic cargo to the Democratic Republic of Vietnam and for the courage and heroism demonstrated. In addition, more than 100 seamen and employees of shore organizations were given USSR state awards, including senior mechanic S. G. Pirogov, who was awarded the lofty title Hero of Socialist Labor. Furthermore, 110 seamen were given state awards of the Democratic Republic of Vietnam.

The seamen of the company marked the beginning of the 10th Five-Year Plan with shock labor. The stepped-up obligations and counterplans of the collectives for 1976, the first year of the 10th Five-Year Plan, were a concrete expression of their labor and political activism.

Accelerated development of Magadanskaya, Sakhalinskaya, and Kamchatskaya oblasts and the regions of the Far North, which was done in conformity with the resolutions of the 25th party congress, demanded that maritime transportation significantly increase shipping of national economic cargo to these regions.

Coastwise shipping increased 3 million tons during the 10th Five-Year Plan, and receipts from sailing overseas rose 60 percent. This demanded that the collective of the steamship company look for production reserves and new ways to organize labor.

During the 10th Five-Year Plan the system of continuous technical servicing of the fleet with a four-year repair cycle for an average annual operating period of 321 days or more for ships continued to develop. The Shchekino method was introduced further, and a campaign developed to increase the load and carrying capacity of the tankers.

More than four years ago a petroleum transshipment center was established in Nakhodka. The participants in the center are the Primor'ye Steamship Company, the Primor'ye Administration of the State Committee for Petroleum Products, and the Vladivostok section of the Far Eastern Railroad. In the 10th Five-Year Plan alone the smooth work of the participants in the bulk petroleum transportation center made it possible to increase the volume of ocean shipment of petroleum products by 21.3 percent. But the main achievement of the cooperating organizations has been improving the quality indicators of their work. Thus, the productivity of fleet work in coastwise shipping rose 2.7 percent. In 1980 fleet downtime at petroleum depots in Primor'ye was reduced 10 percent compared to 1979.

In addition to expanding and updating the fleet, work is being done to prevent contamination of the sea by petroleum products and other harmful substances. Measures have been approved to accomplish this. We outfitted the tankers with systems and tanks to collect waste water and return it to shore. All tankers have spillage prevention sidepieces and chemical washing of the tanks has been mastered and introduced.

A zone for heavy booms and a hulk for light booms have been established in the Nakhodka petroleum port. Petroleum-waste collectors have been received and are now used, and liquid and solid waste is taken from the tankers. Purposeful preventive work is done and a continuous competitive inspection has been organized for best organization of work to prevent contamination of the sea with petroleum.

The onshore material-technical base of the steamship company developed during the 10th Five-Year Plan. Housing resources were increased by 20,000 square meters, a 450-person layover hotel and an 84-person dormitory were put into use, and the Parus Pioneer camp was expanded. In this same time warehouse facilities capable of handling 4,950 square meters of general cargo were built along with potato storage facilities with a capacity of 1,940 tons and a 600-ton distribution refrigeration unit. The company built a garage for trucks, a machine workshop, and a dock for processing petroleum products in containers. The stock of trucks, lifting equipment, and other specialized machinery was significantly expanded. The information-computing center went into operation.

A great deal of organizational and mass political work was done by the management of the steamship company and the party, trade union, and Komsomol organizations to carry out the decisions of the 25th Congress of the CPSU and make the 10th Five-Year Plan the five-year plan of efficiency and quality. Each year some 60 measures to raise the efficiency of the transportaiton process were introduced in the steamship company. For example, optimal disposition of the fleet by directions of shipment for successive trips produced an economic benefit of 1,496,000 rubles in the five years. Switching the ships to an extended operating cycle provided an economic benefit of more than 815,000 rubles.

To solve the problems of increasing the fleet's carrying capacity and insuring safe operation of ship systems and mechanisms, each year the steamship company appropriated money for research, testing, and introduction of scientific and technical advances. More than 50 different plans were developed and introduced on assignment from the steamship company. The plans aimed at increasing the load capacity of certain classes of tankers, improving their strength, converting the ship's engines to less expensive grades of fuel, and improving the servicing of certain ship assemblies and mechanisms. For example, adapting the main engine and boiler of Baskunchak class tankers to operate on heavy grades of fuel saved the steamship company more than 130,000 rubles a year. During the five-year plan steps to introduce new technology into production produced an economic benefit of 7.6 million rubles, far beyond the plan assignment of the ministry.

The steamship company is working constantly to use fuel with maximum economy per unit of transportation output. Each year we develop organizational-technical measures for this purpose, preventing fuel losses and using secondary energy resources and by-product heat efficiently. Extensive work has been organized to explain the importance of fuel and energy conservation on the job and at home. All these things enabled us to conserve 28,965 tons of standard fuel and more than 389 tons of lubricants in the five years.

The steamship company attaches great importance to efficiency and invention work. All the ships and shore enterprises have primary organizations of the All-Union Society of Inventors and Efficiency Experts, scientific-technical societies, and technical-economic councils. The economic effect from efficiency measures averaged 120.4 rubles for each ruble spent.

In the last five years innovators in the steamship company submitted 1,530 proposals; 1,137 of them were introduced and provide a total annual economic impact of about 1 million rubles. The best organizers of technical creativity have proven to be senior mechanics V. Malykhin and A. Kuraka, navy veteran and mechanic-tutor I. Vdovin, and head of the automation laboratory N. Mozharovskiy, among others.

Continuing work to raise the efficiency of the transportation process, in December 1979 the steamship company opens regularly scheduled lines from Primor'ye ports to Magadan. As a result downtime on this route was reduced 3.1 percent. In monetary terms the savings per trip is about 10,500 rubles.

Furthermore, work on a schedule on this route makes it possible to meet the growing needs of the Magadan industrial region for petroleum products more fully using less tonnage.

In all stages of its activity the company has devoted paramount attention to work with personnel. This work was directed to meeting the principal challenge of the collective of the company: fulfilling the assignments of the 10th Five-Year Plan. A great deal was done to improve the selection, placement, and indoctrination of personnel, and to create a unified labor collective capable of taking a creative approach to solving various problems.

The steamship company has taken all possible steps to create normal working and leisure conditions for its personnel and to raise their qualifications and general educational level. Thus, at the end of the 10th Five-Year Plan more than 250 persons were enrolled by correspondence at higher and secondary specialized educational institutions, 38 had completed higher and secondary schools, and 360 had received certificates for completion of secondary school. At the present time more than 400 persons are attending 8-10th grade classes.

The steamship company has formed a training combine to prepare rank-and-file specialists. During the 10th Five-Year Plan 600 specialists for the transport fleet and shore enterprises were trained, both with leave from the job and without. We devote great attention to retraining of personnel. More than 500 engineering-technical personnel have gone through retraining at higher and secondary specialized schools. We have established conditions for fleet command personnel and administrative workers to study English at short courses in the steamship company's training combine and 10-month courses at the Leningrad and Odessa higher naval engineering schools. In the last five years alone more than 200 persons have gone through training and passed the appropriate tests.

We also attach great importance to forms of personnel work such as tutoring, which promotes growth in professional skill and stronger labor and production discipline. At the present time the steamship company has 65 councils of tutors with 250 members.

More than 400,000 rubles was released in the last five-year plan for fulfillment of the comprehensive plan of organizational-technical measures to establish safe working conditions and raise the level of mechanization of labor processes. This made it possible to improve working and leisure conditions for the seamen, mechanize many labor processes, and in most cases eliminate heavy and unproductive labor.

The number of accidents and emergency situations arising through the fault of the crew declined somewhat in the 10th Five-Year Plan, but the frequency rate of emergency situations remains extremely high.

Analysis shows that the main reasons for accidents and emergency situations are violation of the fundamentals of navigation and the requirements of good naval practice, technical operations regulations, and labor discipline. We focus the attention of the seamen and workers of services and divisions who support safe navigation on these questions. Annual plans of organizational-technical measures to insure safe navigation and prevent accidents are worked out with this in mind. At the same time, there are numerous questions related to safe work by the fleet that we cannot resolve by ourselves. Above all this refers to failure to fulfill the plan for navigation repair of ships because we do not have our own ship repair and technical maintenance facilities.

The steamship company devotes constant attention to improving medical and sanitarium-resort service to the seamen and workers of shore organizations. In 1976-1981 the company sent 1,758 employees to institutions for health improvement and more than 2,500 children spent time in summer health camps.

All of these things — creating normal work and leisure conditions, improving housing and domestic conditions, offering opportunities to acquire vocations, raising qualifications and general educational levels, and purposeful mass political work — helped the young collective fulfill the plans and obligations of the 10th Five-Year Plan with honor.

The five-year plan for coastwise delivery of national economic cargo was fulfilled ahead of schedule, on 1 December 1980. By the end of the year we had shipped 356,000 tons beyond the plan. The plan for overseas shipping was fulfilled by 105.6 percent, and the profit plan by 102.6 percent. Above-plan profit was about 5.5 million rubles. The five-year assignment was fulfilled by all structural subdivisions of the steamship company.

While we are speaking of our production achievements, we cannot fail to mention the people whose creative approach to their assigned work helped us fulfill the tasks given to the collective. Among them were the crews of communist labor of the tankers Pamyat' Lenina, Usinsk, Leninskoye Znamya, and Stepan Vostretsov and the crew, given the honor of bearing the name of the 26th Congress of the CPSU, of the tanker BAM; they made the greatest contributions to fulfillment of the plans and socialist obligations of the 10th Five-Year Plan. Among the shock workers of the 10th Five-Year Plan, we could mention: V. Veresotskiy, captain of the tanker Nizhnevartovsk; V. Vedenev, machinist's mate on the tanker Internatsional; B. Gvozdinskiy, lathe operator on the tanker BAM; M. Gorokhovatskiy, senior mechanic on the tanker Gornopravdinsk; V. Grishin, captain of the tanker Kamensk Ural'skiy and winner of the Badge of Honor Order; V. Dudkin, chief of the radio station of the tanker Stepan Vostretsov; S. Sementsov, senior mechanic on the tankerPamyat' Lenina and winner of the Order of the Labor Red Banner; V. Naumov, executive officer of the tanker Alekseyevsk and winner of the Order of International Friendship; V. Gribenok, bosun of the tanker Raum and winner of the Order of Labor Glory 3rd Degree, as well as many, many others.

The collective of the steamship company successfully carried out its plan and socialist obligations for the first year of the 11th Five-Year Plan. In the future we face new, even more important challenge and we are confident that we will master them. The heroic labor of our seamen reinforces this.

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OCEAN AND RIVER

RAILROAD FAILS TO COOPERATE WITH DONETS PORT ON SHIPPING PLANS

Moscow VODNYY TRANSPORT in Russian 5 Dec 81 p 2

[Article by V. Zhivotkov: "Willing Hands Want Work"]

[Text] Fourteen years ago the state commission accepted the Ust'-Donetskiy river port for operations. Today it is one of the largest and most highly mechanized enterprises of the RSFSR Ministry of the River Fleet.

The Ust'-Donetskiy river port was conceived to play an important part in the development of transportation links between the Donets basin and the Volga, Northern, and Ural economic regions of the country and to relieve the load on railroad transportation. It was contemplated that the port would be able to transfer 11-12 million tons of coal from rail to water transportation and up to 4 million tons of timber from water to rail shipping.

The scope of the project was truly of national dimensions, and the calculations were accurate. But the economy does not mark time. Life has compelled severe modifications. The fuel-energy situation of recent years has significantly affected the balance of the port's traditional cargo flows.

No matter how strange and upsetting it may be, transshipment of long-distance transit cargo (the principal task!) today accounts for no more than 40 percent of the port's cargo turnover. Powerful production capacities are in large part used for secondary purposes. The "last resort" of river workers, extracting and hauling sand, has come into play.

The underloading of the docks with transshipment cargo has, naturally, led to a high prime cost of cargo-handling work. Last year the level of profitability at the port was just 3.9 percent.

The port is operating in the face of a critical shortage of cargo. This gave birth to an idea: switch part of the shipment of iron ore from the Kursk magnetic anomaly to Ural metallurgical plants from direct rail transportation to mixed rail-river transportation with transshipment at the Ust'-Donetskiy and Perm' river ports. The volume of this shipping can reach 1-1.2 million tons a year. This alternative offers substantial benefits. In the first place, ore shipping on very heavily loaded trunk railroad lines is reduced. In the second place, delivery of one ton of ore by mixed transportation is one ruble cheaper.

In the third place, the balance of loaded and empty gondola cars involved in transshipment in the port is improved.

The administrations of the Volga-Don Steamship Company and the Ust'-Donetskiy port were able to demonstrate the vital necessity of this step to USSR Gosplan and the USSR Ministry of Railroads. For the first time 300,000 tons of Kursk ore was included in the annual plan of the port. In 1979 the plan for transshipment of ore had already risen to 800,000 tons. They were nearing the cherished 1 million mark.

But suddenly the delivery of ore began dropping disastrously. For 1981 they were promised just 400,000 tons of ore, and next year ore shipment in mixed river-rail transportation may be reduced to zero. In October V. Koziatko, chief of the Ust'-Donetskiy port was curtly and unceremoniously told by the USSR Ministry of Railroads: "We will not bring ore to the port!"

The collective of the port was upset: Why had this blow struck? But the answer they received was that the managers of the Ministry of Railroads categorically refused further ore shipments in mixed rail-river transportation. They resorted again to their old justification, that it supposedly disrupts the balance of empty and loaded cars in this region.

To be frank, the sincerity of these justifications is not believable. It is more likely that the railroad workers do not want to give up free ton-kilometers. Look at the situation. The clients of the railroads (the Kursk Magnetic Anomaly mine and the Chelyabinsk Metallurgical Plant) load and unload the cars themselves and clean them. Ore-carrying gondola cars do not have to be stored. Route instructions do not have to be worked out at marshaling yards.

This is clear to anyone: How could a manager give up such an opportunity? Could he be expected to refuse the billion ton-kilometers earned in this way? After all, we are talking about ore, not motor vehicles, containers, rolled metal, equipment, ore grain and vegetables, which are plenty of trouble.

But is this really a state-minded approach to work? Isn't this really an example of mismanagement and narrow departmentalism?

Now let us look at the current situation in the port. It is expected that the port will receive 1 million plus tons more cargo to be transshipped from water to rail transportation than cargo to be transferred from rail to water transportation. The shortage of railroad cars for shipping cargo will be 20,000 units! What does this mean?

It means that at the end of the shipping season this same 1 million tons of national economic cargo will be lying on the docks at Ust'-Donetskiy waiting for shipment by rail. And the railroad workers will still have to carry this 1 million tons after the shipping season closes. But at this time they will have to deliver empty cars to the port. This will create a shortage of cars at enterprises. So what we see is that the railroad workers themselves create problems in order to overcome them later!

For the sake of objectivity, suppose that we can believe that the economic situation really does require that shipment of Kursk ore to the Urals be reduced in the near future. It is not, however, a question of ore. This is just one example. It is a question of the attitude of railroad workers toward mixed transportation!

The necessity of transferring part of bulk cargo from rail to river transportation has been mentioned many times in party documents, in the press, and even in the statements of railroad managers themselves. The document "Basic Directions of Economic and Social Development of the USSR in 1981-1985 and the Period Until 1990" states: "Where it is expedient, transfer as much shipping as possible from rail to river transportation."

The Don river workers are ready to take over part of the burden of the railroad workers, but the latter stubbornly refuse to see the hand of friendship and mutual aid that is extended. There has been no response so far, and it was not without bitterness that A. Belodvortsev, chief of the Volga-Don Steamship Company, told me:

"In all the time that I have worked in this basin, neither the USSR Ministry of Railroads nor the administration of the Northern Caucasus Railroad has ever proposed to us, the river workers, switching even a small part of the cargo from a trunk railroad line to waterways."

Many similar stories which upset or disrupt the work of the Ust'-Donetskiy port and prevent the collective from using its full production capacity could be given. For example, port workers are very disturbed by the sharp decline in timber shipment through their ports. They recall the golden days when the port processed more than 1 million tons of timber a season (1970 and 1971). But today timber shipping from the Yaroslavl' river port has stopped, shipment from Gor'kiy has been cut in half, and from Perm' it has dropped to a minimum.

This is not true only at Ust'-Donetskiy port. The arrival of timber in the entire Donets basin has declined by one-half. All this is strange and surprising.

After all, no construction site or mine can get by without timber. Rostovskaya Oblast is one enormous construction site, and projects are thick in the Kuban'. They need timber, and they are receiving timber! And if the river workers have not delivered it in their ships, it is certainly the railroad workers who have taken on this freight.

In recent times clients have been less and less willing to use the services of river transportation to ship timber. The reason for this is well-known. In Ust'-Donetskiy port, as in many other ports, timber is delayed for many months waiting for empty railroad cars. It is entirely natural that the receivers of the timber are losing interest in river routes. River workers are not the only ones who pay for this. The railroad workers are the greatest losers. They do not present railroad cars for transshipment in Ust'-Donetskiy port in order to ship the load some 100-200 kilometers, and for this they must ship the timber thousands of kilometers by their own means.

The resolutions of the 26th Congress of the CPSU demand that transportation problems be resolved in a business-like, state-minded fashion. Using a highly mechanized enterprise with good working traditions such as the Ust'-Donetskiy port to full capacity is a concern not just for river workers. The port workers, as they say, have anxious hands, willing hands that want to work to make the party vision a reality as soon as possible.

They do not want, however, for their participation in this great cause to be diminished by formalism, mismanagement, and fruitless departmental squabbles.

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BALTIC COMPANY'S LARGE NEW RO-RO SHIP DEPARTS ON FIRST VOYAGE

Moscow MORSKOY FLOT in Russian No 1, Jan 82 p 41

[Article by N. Krymov: "Large Ro-ro Ship"]

[Text] In early 1981 the fleet of the Baltic Steamship Company was augmented by receipt of the large ro-ro ship Anatoliy Vasil'yev. The ship carries the name of Anatoliy Lukich Vasil'yev. He was the head of the port of Leningrad and of the Baltic Steamship Company for many years, and later worked as director of the joint Soviet-Finnish Saima Lines stock company.

The Anatoliy Vasil'yev is the first of two single-series ro-ro ships. It was built at the A/O Valmet shipyard in Finland, based on the design of the diesel ships Magnitogorsk and Komsomol'sk. But the new ship is very different with respect to technical equipment because of changes made in view of operating experience with the earlier ships.

The Anatoliy Vasil'yev has medium-rpm type 14/U 52/55A diesel engines with a power output of 9,925 kilowatts, built by the MAN Company, instead of engines from the Burmeister and Wein Company. The ship's maximum length is 205.4 meters, with a width of 31.0 and a draft of 9.7 meters. The hold capacity is 55,418 cubic meters, and the ship's speed is 22 knots. The ship conforms to the requirements of the basic international rules and conventions.

The Anatoliy Vasil'yev is designed to carry containers, trailers, wheeled and caterpillar vehicles, stacked cargo and the like, arranged on four decks.

Cargo-handling operations are done through a stern ramp 36 meters long and 7 meters wide. Unlike earlier ro-ro ships, the Anatoliy Vasil'yev has a ramp with a reinforced and broadened roadway, making it possible to deliver cargo of up to 60 tons into the hold and thus speed up ship processing.

The ship has a bow-mounted transverse propulsion unit with stabilizing and anti-list systems. The 9.5-ton anchor is carried on the forward deck, not stored in a hawsehole. The arrangement of the boat unit and gangways has been improved.

The diesel ship Anatoliy Vasil'yev will work lines between Leningrad and ports in Canada, Central America, Cuba, and Western Europe. After loading 1,500 Lada cars, 120 (20-foot) containers, and more than 100 heavy-duty trucks in Leningrad, the ship departed on its first voyage, to Halifax, Canada and Havana, Cuba.

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OCEAN AND RIVER

DETAILED DESCRIPTION OF NEW BULK TANKER GIVEN

Moscow MORSKOY FLOT in Russian No 1, Jan 82 pp 42-45

[Article by L. Kryshtyn, chief engineer of the Novorossiysk Steamship Company: "The Bulk Tanker Akademik Sechenov"]

[Text] The new bulk tanker Akademik Sechenov has been added to the fleet of the Novorossiysk Steamship Company. The tanker was built at the Nikolayev Okean Shipyard. The ship is designed to carry bulk liquid and dry cargo, including grain, apatite, ore concentrate with specific loading volumes of 0.36 cubic meters per ton and more that do not rust in the shipping process, and one grade of petroleum or petroleum products. Its cruising region is unlimited, including the tropical latitudes and periodic sailing in pack ice.

Basic Specifications of the Ship

Length:	
Maximum	258.6 meters
Between Perpendiculars	244.0 meters
Maximum Width	39.8 meters
Depth at Midship	21.4 meters
Draft:	
At Summer Loadline	15.6 meters
Specified	14.5 meters
Water Displacement:	
Empty	23,000 tons
Loaded	132,640 tons
Deadweight	99,180 tons
Deadweight with Draft of 15.6 Meters	108,890 tons
Capacity of Cargo Hold-Tank	114,340 cu. meters
Power of Main Engine	15.8 megawatts (21,600 horsepower)
Speed Under Load	15.2 knots

The ship has a single screw propeller, a single deck, a transom stern, a bulb bow, and the engine room and living quarters in the stern. The ship has a continuous inner bottom between the peak bulkhead and is constructed for class AN LZ A2 (bulk petroleum cargo) of the USSR Register.

The ship has a welded hull of low-alloy steel and is divided by transverse bulkheads into nine hold-tanks with petroleum and gas-tight covers in the engine room, forepeak, and afterpeak.

The ship has appropriate equipment and systems to fully meet the requirements of the 1973 International Convention on Preventing Pollution from Ships, also taking into account additional measures to prevent contamination of the sea by petroleum according the U. S. Regulation for Navigable Waters.

The cargo-handling system is automated. Cargo-handling operations are controlled from the cargo-handling operations control post (PUGO). Petroleum can be loaded into three hold-tanks at one time.

The main type of the loading system is a round welded channel in the interbottom space under the hold-tanks with branches and pressure fittings leading to the suction wells of each hold-tank.

The cargo system permits petroleum to be taken on from shore using shore equipment at an intensity of 10,000 tons an hour and to be fed out by ship equipment; in addition it pumps out washing water from the hold-tanks and fills and pumps out ballast from holds Nos 4 and 7.

Two cargo pumps with pipelines that feed 5,000 cubic meters an hour apiece at a pressure of 0.78 megapascal (80 meters water column) are installed in the cargo pump room. The ship has discharge tanks to wash out the hold-tanks by a closed cycle. The cleaning system has two TP-320 screw-type turbopumps, each feeding 300 cubic meters an hour at a pressure of 0.98 megapascal (100 meters water column).

Cargo-handling operations are automated by an Il'men'-2 system. The cargo gate valves are hydraulically controlled. The control consoles for the valves are in the PUGO. In addition, there are control consoles for various groups of cargo and ballast gates in the engine room and the middle superstructure. It takes 30-60 seconds to open the gate, and there is a special key attachment for emergency (manual) opening of them. Remote measurement of the cargo is done by an Enraf float system, separately for each hold-tank.

The gas outlet system is self-sufficient; a pipe is run from each cargo hold-tank at a height of about three meters from the upper deck and insures efficient gas outlet with the specified loading intensity. Each pipe ends with a breather valve that has a builtin fire safety device. The valve is triggered when pressure in the tank rises above 12.7 kilopascal (1.3 meters water column).

When loading is done by the closed method gases are discharged from the autonomous gas outlet system at a height of 8-10 meters thanks to developing velocities up to 30-40 meters per second at the exit from the automatic gas discharge device.

Steam heating of the cargo for the hold-tank is accomplished by three experimental PTI-1200 heaters using the stripping pump, while for the settling tanks heating is done by heating coils. The system maintains a cargo temperature of about 40 degrees C until the end of the voyage (with an outside water temperature of zero degrees C and an air temperature of -15 degrees C).

The dried inert gas system is automated and is used to create an explosion- and fire-safe environment in the cargo tanks. The inert gases are forced into the hold bv two fans with productivities of 7,000 cubic meters apiece at a pressure of about 22.5 kilopascal (2.3 meters water power). An excess pressure of up to 8.8 kilopascal (0.9 meter water column) is maintained in the hold-tank at all times. The inert gases are cooled and decontaminated in a cyclone-foam device. Switching on and off is done by the Viktoriya automatic control, monitoring, and signaling system.

The fecal water decontamination system is a closed system with an LK-50 device to process and decontaminate 15 cubic meters a day of waste water and 25 cubic meters of fecal water. The ship has a Golar OS-400 incinerator unit that can burn 400 liters of solid waste a day and separate fuel. The temperature in the combustion chamber is 1,400 degrees C and the temperature of the exhaust gases is regulated to 300-400 degrees C.

The mechanized washing system washes out the hold-tank with outside water in a closed cycle, dries the hold with jet-type water ejectors or stripping pumps, and before discharging the wash water runs it through a series of settling tanks.

Washing is done by MM-200 hydraulic monitors permanently mounted in each hold-tank. Water is fed to the monitors by TT-2300 cargo pumps to pipes permanently installed on the upper deck. The wash water is removed from the hold-tank through the cargo channels of the system by means of ejectors and fed into the settling tanks, located along the sides by the cargo pump room, and then into hold-tank No 9. The possibility of washing on a closed cycle using chemical agents with two-stage settling is also envisioned.

The wash water is heated to a temperature of 65 degrees C by two heaters that support the work of four manual washing machines. The washing system envisions washing two hold-tanks at once. Washing time for all the tanks is no more than 48 hours. The PUGO is used to feed and stop the water and stop the pump. The system also washes the hold-tanks with crude petroleum.

The petroleum content in wash water discharge overboard is monitored by a Salviko system. When the petroleum content in the water exceeds the assigned level, the valves automatically shut off discharge overboard and the cargo pumps stop.

The main engine is a nine-cylinder, two-cycle, reversible, crosshead-type DKRN 80/160-4 engine with turbosupercharging and a built-in thrust bearing. The engine was built in Bryansk on a license from the Burmeister and Wein Company. The framework is welded. The engine has a power output of 1.55 megawatts (21,600 horsepower) at a frequency of revolution of 1.95 s^{-1} (122 rpms).

The main engine is remote controlled from the central control station and wheelhouse. The engine operates on heavy fuel which is cleaned by two MARKh-309 self-cleaning separators. The main engine has safety devices: emergency unit for the case where pressure drops in the cylinder and piston lubricating and cooling systems. Protection for other parameters such as the temperature of the cooling water is accomplished by reducing the frequency of shaft rotation to maneuvering rates of $1.36s^{-1}$ (85 rpms).

All systems to monitor emergency and preventive signals run to the central control unit. The unit operates on electronic circuits and logical cards. The system has an automatic letter printer which is triggered simultaneously with the emergency signaling system and record the date, time, and type of malfunction.

The automatic control system for the power plant provides automatic starting and switching in case auxiliary mechanisms go down. All mechanisms are started by remote control from the central control center. The central control center has an automatic air conditioning unit for normal operation of the electronic system. The system to give signals on deviations in the most important parameters has been expanded. General signals are sent to the navigating bridge, the compartments of the engineering offices, the wardroom, the messroom, and the cabin of the command personnel. If there is no prompt response to a signal, after 30 seconds the ship sound signal (bells) is triggered. The equipment used and the scope of automation insure that the power plant can be operated with one person on watch when the ship is under sail and without someone on watch when it is in port.

The auxiliary boiler installation consists of two automated boilers: a KV-1 boiler and a KAV 6.3/7 boiler aggregate, as well as a KUP-1100 recycling boiler that uses the heat of exhaust gases from the main engine. The auxiliary boiler and boiler aggregate are vertical, piped-water boilers with natural circulation and heat on a single front using heavy fuel. The boilers are equipped with devices for automatic fuel supply and regulation of the combustion process, as well as automatic safety and signaling systems. The recycling boiler is a vertical, piped-water boiler with pressurized circulation, a builtin steam superheater, and a separately mounted horizontal steam separator. The recycling boiler installation has devices to automatically maintain the water level in the separator and to collect excess steam in a condenser.

The auxiliary power plant consists of three similar 500-kilowatt DDR 500/500 diesel generators driven by four-cycle diesel engines with a turbosupercharger (brand 84N25/34-3) and a recycling turbogenerator with a rated output of 800 kilowatts. An ADGF-100/1500-R diesel generator with a power output of 100 kilowatts is mounted on the top deck as an emergency source of electricity.

The ship's air system is operated by two main compressors that feed 391 cubic meters an hour apiece at a pressure of 30 megapascal. One automatic 3K140-0M5 pumping compressor that feeds 140 cubic meters an hour at a pressure of three megapascal and an EK-16 compressor for administrative needs that feeds 150 cubic meters an hour at a final pressure of 0.8 megapascal are also envisioned. The installation has an automatic air decontamination and dehumidification station. The automated units can be operated from the air tanks of the main engine.

The propeller of the ship is a five-blade fixed-pitch screw propeller made of high-strength bronze.

An R-24 electrohydraulic four-ram steering engine with a rated turning moment of 250 tsm [expansion unknown] with two main pumping aggregates and an automatic steering unit is mounted in the steering room to move the rudder. The rudder can be moved from one side to the other in not more than 28 seconds. A backup electrohydraulic rudder drive is also envisioned. It can move the rudder from 20 degrees of one side to 20 degrees of the other in no more than 60 seconds when the ship is running forward at half of full speed. The ship uses one streamlined semibalanced rudder.

The ship refrigeration unit consists of MAK-9 compressor-condenser aggregates. The compressors have a cooling productivity of 9,000 kilocalories per hour apiece. The compressors are switched on and off automatically. The frost coat from the air coolers of the refrigeration chambers is removed automatically by builtin electrical heaters. The temperature is maintained in the chambers by two compressors.

The air conditioning system consists of two automated Briz airconditioners with a productivity of 5,600 cubic meters an hour apiece. The cooling unit of the air conditioning system consists of two MAK-60 compressor-condenser aggregates with automatic regulation of productivity. The cooling unit has a total cooling productivity of about 230,000 kilocalories per hour at a temperature of +5 degrees C and a condensation point of +35 degrees C. The operation of the cooling unit is fully automated.

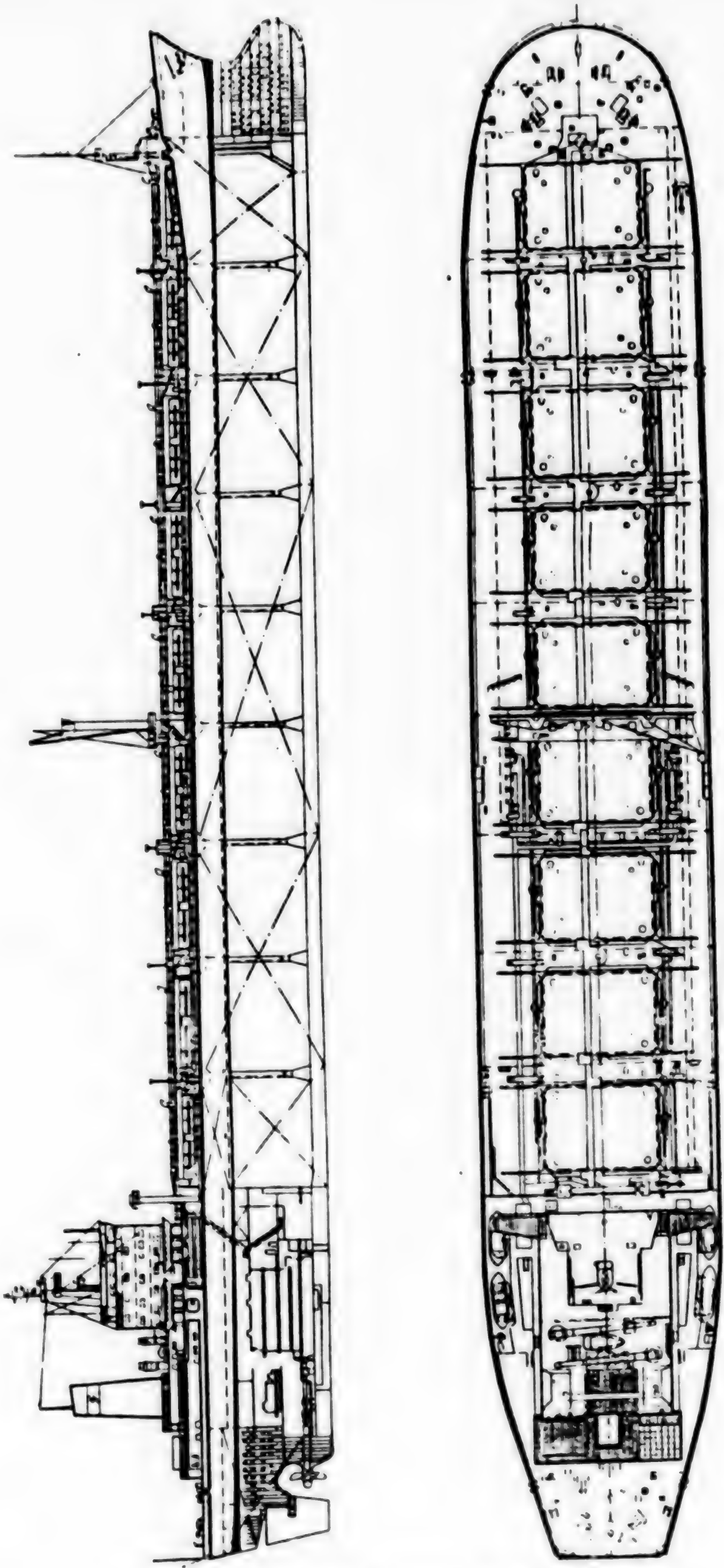
Ship communications are carried on by means of a 1.5-kilowatt Brigg short-wave transmitter, a 0.4-kilowatt Korvet short-wave transmitter, a 0.3-kilowatt Musson medium-wave transmitter, and a 0.06-kilowatt Sirena emergency radio transmitter.

The anchor gear is operated by two hydraulic anchor-mooring winches. The anchors are raised at a rate of 10 meters a minute. They are fed out by remote control from the bridge with automatic braking of the sprockets of the anchor winches. The ship has two Hall's bower anchors and one standby anchor. Each anchor weighs 14 tons.

The mooring gear includes seven hydraulic winches that can tighten the lines manually or automatically.

The ship is equipped with two cargo booms that work with hoses during cargo-handling operations. Their load capacity is 12.5 tons apiece and they reach four meters beyond the sides of the ship. The booms are operated by LE92 winches which are controlled from one control console.

Two electrical KE32-2 cranes are mounted along the sides for cargo-handling operations, servicing the engine room, and raising and lowering the work boat and raft on the first deck of the deckhouse. The booms reach about three meters over the side.



General Layout of Ship

The electrical and radio navigating gear includes an RAS Okean-M radar, an IEL-2 log, a Rumb radio direction finder, and NEL-10 echo sounder, and a Vega gyrocompass. The ship is equipped with a Dekka radio navigation phase system and Loran and Magnovoks systems [names transliterated].

The rescue equipment includes four AT-30 rescue motorboats that hold 30 persons apiece and one RShPM5.5 motorized work boat · The ship also has three PSN-10 inflatable rafts that hold 10 persons apiece and a PSN6M inflatable liferaft that holds six persons. The lifeboats are raised and lowered by means of ShB2Sh10V gravity-type davits and LSh4D electromanual boat winches. The ship has a set of line-throwing and signaling devices.

Fire safety is provided by five systems.

The water-type firefighting system feeds water to the fire horns, to the foam extinguishing system, and for other ship needs. It is operated by two stationary NTsV220/100A electrical pumps that feed 220 meters an hour apiece at a pressure of 0.98 megapascal (100 meters water column) and one emergency DPNS-220/100 firefighting motorized pump with similar parameters. The NTsV220/100A pumps can be started from the place where they are mounted and by remote control from the central control center, the rudder house, and the PUGO. The DPSN 220/100 pump is started from the local position and from the top deck. NTsV 100/100A ejectors are envisioned to feed water into the main firefighting line from the working water pump.

A steam extinguishing system is provided to extinguish local centers of fire in the recycling boiler, the mufflers of the main engine and emergency diesel generator, the spark traps of the smokestacks of the auxiliary boilers, the fuel bunkers, and the engine room. The control post for the system is located in the superstructure.

The foam extinguishing system is envisioned to extinguish fire in the cargo hold-tanks and the cargo pump room and also as an additional firefighting means in the engine room and superstructure. The system works on a PO-1 foam generator. Stationary SO-1 high-expansion foam units are provided in the machine-boiler room to extinguish local centers of fire.

The liquid fire extinguishing system is designed to smother fires in the machine-boiler room and as a supplementary means for the pump room.

Carbon dioxide devices are envisioned to extinguish fires in the areas of the emergency diesel generators, the paint store, and the forward pump room using local extinguishers. In addition, carbon dioxide is envisioned to extinguish fires when reversing the engines.

The arrangement of the work, service, and living quarters maximizes expedient location , economical use of usable area, and comfort. The ship has 46 cabins with 50 beds. There is also a cabin for the pilot. All the cabins except those for practical trainees have bathrooms. There are dressing and shower rooms for mechanics and engineers. The ship has an office and a clerk's room for standing anchor watch, filling out documents, and communicating with shore.

It has an officers' room, a red corner, a gymnasium, and a swimming pool to allow the crew to use leisure time well.

In general, everything necessary has been envisioned on the ship to create conditions that promote highly productive labor, properly organized living, and pleasant, meaningful leisure time for the seamen.

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DELIVERIES OF OIL TO SOUTH AFRICAN REPUBLIC ANALYZED

Moscow MORSKOY FLOT in Russian No 1, Jan 82 pp 54-56

[Article by P. Yur'yev: "Who Supplies Oil to the Racists?"]

[Excerpt] The Navigation Investigation Bureau, formed in March 1980 at the initiative of two Dutch public organizations composed of enemies of apartheid, studied violations of the embargo on oil deliveries to the South African Republic. After a great deal of work the Bureau established that 150 tankers are engaged carrying oil to the South African Republic. One-third of them belong directly to the largest international oil companies, the Anglo-Dutch Shell company and the American companies Mobil and Texaco. It is interesting to observe that each of them has a large affiliated company in the South African Republic. Along with the English British Petroleum company, the American Caltex (jointly owned by the American monopolies Texaco and Standard Oil of California), Exxon, and the French Total, these concerns control more than 85 percent of the petroleum market in South Africa. Ships belonging to Total, British Petroleum, and Exxon also participate in illegal petroleum deliveries.

The refineries that process the crude petroleum belong to Mobil, Caltex Shell, British Petroleum, and Total (in the last case it is joint ownership with the South African state petroleum corporation Sasol). According to information appearing in the foreign press, these companies are directly involved in supplying oil to the South African Republic.

The monopolies do not make a show of their close tie with their South African branches and, of course, try to conceal oil deliveries to the racists. The practice of registering ships under flags of "convenience," which has become widespread in the capitalist world in the postwar period, suits these purposes fully. The companies of the developed capitalist countries place their ships under the flags of Liberia, Panama, Singapore, the Bahama and Bermuda islands, and certain other developing countries and territories with no particular formalities. The lack of monitoring and the autonomy of ownership and control over ships with a total deadweight of 217.5 million tons (31.5 percent of the tonnage of the world merchant fleet) create broad opportunities for unconscientious operators and those who love easy profit.

Speaking at the 9th Session of the Committee on Maritime Shipping of the U. N. Conference on Trade and Development held in September 1980 in Geneva, the representative of the African National Congress observed that flags of "convenience" serve as camouflage behind which unscrupulous operators conceal their ignoble activities. Ships sailing under flags of the open registration countries are used extensively by those who violate the embargo imposed by the international community on oil deliveries to South Africa.

Of the 150 ships whose participation in oil shipping to South Africa has been established, 55 sail under flags of "convenience," 45 under the flag of Liberia in particular. Many of them in reality belong to shipowners in the United States, England, West Germany, and the other developed capitalist countries.

Captivated by the hunger for profit, some owners of ships sailing under flags of "convenience" are not even content with the large sums of money that they can wrest from the South African Government for illegal oil deliveries. They deliberately sink the ship to receive the insurance money for the tanker and its no-longer existing cargo. This is what happened to the supertanker Salem, put under the "convenient" flag of Liberia by the American Oxford Shipping Company. After secretly unloading more than 200,000 tons of crude petroleum in the South African port of Durban, the ship was blown up off the shore of Senegal in order to receive 70 million dollars in insurance money. Despite the fact that the participants in this affair were exposed and their guilt has been shown for practical purposes, not one of them has been punished yet.

Soon after the Salem went down off the African coast two other ships under the flag of Liberia also sank following an explosion. These were the Albakha B and the Mikena, which had earlier also unloaded oil in South Africa. Six crew members died when the Albakha B went down. Who knows what the cost will be to the men of the next secret tanker voyage to the South African Republic.

During the investigation of secret oil deliveries to the South African regime, one of the members of the crew of a ship under a flag of "convenience" observed: "They are making criminals out of us." But the real criminals are not the seamen who have been forced on board these ships by need and unemployment; the real criminals are the monopolies and governments of the Western countries which supply petroleum and weapons to the South African regime.

The South African racists themselves do not neglect the flags of "convenience" either. According to available information, 15 ships belonging to South Africa are registered in Panama alone, and nine are registered in Bermuda. Under a foreign flag South African ship owners are able to send their ships unobstructed to the ports of countries which refuse to receive the ships of the South African Republic. Hiding behind the veil of a flag of "convenience," this fleet delivers petroleum, weapons, and other strategic goods whose importation into South Africa is the subject of the embargo.

Ship owning companies of the developed capitalist countries attracted by profit also participate in secret oil shipments. Oil is delivered to the South African Republic by 27 Norwegian tankers, 16 English, 11 Greek, nine Italian, seven French, five Danish, three American and three Spanish, two West German, and two Japanese tankers.

The techniques by which ships are used for illegal transportation of petroleum were disclosed by the investigation made by the Navigation Investigation Bureau. Using the example of the supertankers Havdrott, with a load capacity of 240,000 tons and belonging to the Norwegian A/S Havtor Company, the Bureau demonstrated the deliberately confused pictures of calls at various ports by those ships which are making regular trips carrying oil to South Africa.

After analyzing data on ship traffic published by the Lloyd's Register, the Bureau came to the conclusion that between January 1979 and March 1980 the Havdrott spent most of its time shipping oil to South Africa. In reaching this conclusion the bureau was guided not only by direct information from Lloyd's Register on three calls in the South African Republic carrying petroleum, but also taking into account the length of the voyages in those cases where the port where the oil was loaded was known but the port of unloading was kept secret.

In April 1979, for example, the Havdrott took on a load of oil in Iran, supposedly destined for France, but it did not arrive there. All that is known is that after a call in Capetown the ship was sent in ballast to the Persian Gulf where it took on a new load of oil in the Saudi Arabian port of Ras Tanura, destined openly for South Africa. After this the tanker again returned to Ras Tanura and left with a load of oil for an unknown destination. Approximately two weeks later the Havdrott again arrived for loading, this time at one of the ports of Iran. The port of unloading also remained unknown. A similar situation occurred in 1980 as well.

The Bureau calculated that in the cases where the port of unloading was not established by the Lloyd's Register, the voyage of the Havdrott from the moment of its departure with a full load until it returned in ballast to some Persian Gulf port or other ranged from 27 to 44 days. It is not possible in this time to complete a trip to the ports of Europe or the Americas and back, but it is entirely realistic to cross to South Africa, unload in Durban or Capetown, and return for a new load of petroleum.

It is easy to explain the lack of information on the Havdrott's calls at South African ports. As the Norwegian newspaper DAZBLADET reported with a reference to information obtained from one of the members of the tanker's crew, upon approaching Capetown the deck force was ordered to cover the name of the ship with canvas. This was the charterer's wish. The same thing happened with the supertanker Salem, which changed its name to Lem before calling in Durbin.

Thus, to the three officially recorded trips of the Havdrott an additional 12 must be added. If the tanker travels to the South African Republic with a full load every time, then, as the Bureau observed, with this ship alone the patrons of the racists were able to deliver about 3.5 million tons of petroleum worth a total of more than 750 million dollars to the South African Republic in this period.

The director of the ship owning company A/S Havtor refused to provide information on the travels of the Havdrott, saying that the charterer, the American Transworld Oil Company, required as one of the conditions of the charter that no information be given on the shipping routes. As the Bureau discovered, Transworld Oil also used the 255,000-ton Norwegian tanker Staland to deliver oil to South Africa.

The investigation made by the Dutch Bureau revealed for all to see how and on what scale the Western states are supplying oil to the racists, and again disclosed the ignoble role of the monopolies, who employ the connivance of their states to violate the petroleum embargo.

The extraordinary special session of the U. N. General Assembly on Namibia held in September 1981 showed that a large majority of the members of the world community severely condemn the colonialist policy of the racist regime of the South African Republic and its aggressive actions against neighboring states.

After six days of intense work the U. N. General Assembly, by a large majority of the vote, adopted a resolution which contained, in particular, an appeal to the Security Council to institute all-embracing mandatory sanctions against the South African Republic. One of these sanctions should be an effective embargo on the delivery of petroleum and petroleum products to South Africa.

COPYRIGHS: "MORSKOY FLOT", 1982

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OCEAN AND RIVER

NEW WEATHER RESEARCH SHIPS UNDER CONSTRUCTION IN FINLAND

Moscow VODNYY TRANSPORT in Russian 5 Dec 81 p 4

[Article by Ye. Vasil'kova: "Science Ships"]

> [Text] Finnish shipbuilders are constructing five scientific research vessels for the fleet of the USSR State Committee for Hydrometeorology and Environmental Control. The pilot ship of the series, the Akademik Shuleykin, will be finished next year and turned over to the Leningrad Institute of the Arctic and Antarctic.

"All five science ships have been given names of outstanding Soviet scientists from the fields of hydrometeorology and oceanography," says A. Shishkov, chief of the division of the fleet of the State Committee for Hydrometeorology and Environmental Control. "In addition to the Akademik Shuleykin, we will receive the Akademik Shokal'skiy, the Professor Khromov, the Professor Molchanov, and the Professor Mul'tanovskiy."

The ice-class ships are designed for research in Arctic seas and other seas that freeze over. The information received on board will be transmitted regularly to international weather centers (one of which is the USSR State Committee for Hydrometeorology and Environmental Control) and will help in compiling long-range forecasts.

The displacement of the new ships is 2,000 tons, and they will sail for 60 days without resupply. Their sailing region is unlimited. The ships will have a crew of 38, with a scientific staff of almost the same size. Two engines with a total power output of more than 3,000 horsepower will turn one propeller shaft, so that when drifting it will be possible to shut off one engine and achieve a significant fuel savings. The ships will have effective antirolling devices.

But the main feature of this series of ships is that for the first time on science ships the system for collecting and processing hydrometeorological observations will be fully automated. This will be made possible by the use of domestically produced SM-4 computers.

The trial runs of the Akademik Shuleykin will take place in the Baltic.

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MISCELLANEOUS

IMPROVED TRANSPORTATION MANAGEMENT PROPOSED

Moscow KHOZYAYSTVO I PRAVO in Russian No 11, Nov 81 pp 20-23

[Article by N. Lopatina, research assistant at the USSR Academy of Sciences' Institute for Government and Law, candidate of juridical sciences: "A Unified Transportation System for the Nation"]

[Text] A long-range comprehensive transportation program is being developed in accord with the "Basic Directions for Economic and Social Development of the USSR During 1981-1985 and the Period Up To 1990." Among the important problems which must be resolved in this program is the problem of improved coordination of activity for all types of transportation. This problem requires, in particular, further improvement of regulation by law.

By United Transportation System (UTS) we mean the totality of all types of transportation operating in close cooperation, with each of the types being used to the maximum extent. The UTS is made up of multi-purpose types of transportation, (railroad, maritime, river, motor vehicle, air) which transport freight and passengers, as well as specialized types of transportation (pipeline, electronic, etc.). Municipal, industrial, or more precisely, intra-industrial transportation, conveyor belts, etc., are also part of the UTS. However, it is the multi-purpose types of transportation which are the basis of the UTS. The UTS's task is to organize efficient joint transport.

Now the unity of the transportation system is mainly based on technical, technological and to a certain extent, economic cooperation. As regards legal assurance of this unity, control of relations among the types of transportation is scattered and insufficiently coordinated. At the same time, the diversified character of the transportation system suggests the urgent need for just such legal assurance of the system's unity.

At present, the USSR Council of Ministers coordinates the activities of all union-level transportation ministries and departments, while the union republics' councils of ministers coordinate the republic-level organizations. The union-level and republic-level Gosplans coordinate transport planning. In particular, the USSR Gosplan has an Inter-Departmental Commission for Increased Efficiency in Freight Transport [ICIEFT]. At the local level, coordinating organs (groups, commissions, councils), created by local soviet executive committees, coordinate operations by the various types of transportation. These coordinating organs base their operations on semi-voluntary principles. At the lowest level, cooperation between types of transportation and freight owners is coordinated by the inter-rayon or rayon traffic control services of motor vehicle transport enterprises, or by transport dispatching enterprises and their subdivisions. Thus, one can speak of the functioning of a system of organs which coordinate operations of neighboring types of transport at all levels of management, but which are neither organizationally nor legally inter-connected.

Hence the conclusion: the UTS as an organizational and legal form of structure for the national economy needs to be strengthened in its capacity as a unified industrial and economic complex by establishing standards. Theoretical regulations about the concept of the UTS, its unity, principles for its activity, etc., must be developed, as must normative document controlling the UTS's activity, while taking into account the specific character of each type of transportation and assuring their close cooperation in a unified system.

Means of assuring the UTS's unity must include developing common regulations about planning and organizing transport, as well as developing a unified system of planning indicators and economic standards for making comprehensive use of available resources. There must also be common regulations about the mutual rights, obligations and responsibilities of the cooperating organizations, about establishing a system of freight tariffs, as well as a series of other common regulations for all UTS components.

In this regard, the question of creating a supra-departmental, all-union inter-branch coordinating organ, such as a state committee for transportation, must be resolved. Incidentally, numerous proposals have appeared in the press about such an organ. It would be the UTS's control center, providing unified territorial and transport-branch management, coordinating the activities of the transport ministries and departments as well as their links with other branches of the economy. This organ could do the long-range and yearly planning, organize and develop a unified transport network of main and local lines, determine the amount of capital investments, etc.

Of course, a control organ for the UTS must be endowed with the requisite plentitude of rights and obligations, must be responsible for developing and efficiently organizing the entire transportation system into a unified economic-production complex and must oppose narrow departmental tendencies. But the organ must not substitute itself for the ministries in questions of organizing operational activity, which is the responsibility of the transportation ministries.

There is another possible way of resolving the problem of UTS management, without creating a new organ. It is our opinion that this can be accomplished by leaving the functions for coordinating transportation activity with the ICIEFT, which has been active since 1970 in affiliation with the USSR Gosplan. Of course, this is on condition that the basis of the ICIEFT's activity will be appropriately strengthened in a juridical sense.

Now the ICIEFT has the task of developing measures for improving transportation operation and increasing its efficiency by curtailing inefficient transport. The commission is also busy with problems about the optimum distribution of freight among various types of transportation and is making decisions about establishing a maximum transport distance. The ICIEFT instructs the ministries and departments to develop and coordinate their plans for optimum freight traffic with the Ministry of Railways and develops measures for curtailing short-distance traffic, eliminating backhauls and other inefficient types of transport. It would seem that the decisions made by the commission would be obligatory for all ministries. However, the commission is not always successful in overcoming departmental separatism and many of its decisions are not actually implemented.

For instance, there was the failure, during the 10th Five-Year Plan, to fulfill the tasks prescribed in the plan about reducing inefficient railroad transport of coal, petroleum products, lumber, etc. It was the ministries which were dispatching the freight, plus their industrial associations, enterprises, supply and sales organizations which failed to fulfill the tasks.

Thus, during the 7 years since 1973, the instruction from the USSR Gosplan and USSR Gossnab to discontinue coal deliveries from Raychikhinsk to several stations on the Transbaykal Railroad has not been implemented. Also being ignored is a decision by the USSR Gosplan, made in 1969, about discontinuing delivery of Donetsk coal to Kuybyshev, Yaroslavl' and Gorkiy oblasts and supplying these areas with coal from the Kuznetsk Field.

It is precisely the lack of an appropriate legal mechanism which leads, in a number of instances, to the non-fulfillment of USSR Gosplan instructions about curtailing inefficient freight transport. In this regard, it would be expedient to define the ICIEFT's tasks and functions more precisely. The commission should be endowed with inter-departmental authority regarding transportation ministries, other ministries and departments. Its competence to manage the system of local coordinating organs should also be defined and its legal status settled.

At transportation networks of large industrial and agricultural centers, experience in this sort of activity has already been gained by special organs (inter-departmental commissions, groups and councils) affiliated with local soviet executive committees. Their tasks include taking measures to improve transportation network operations, assuring interaction and cooperation by neighboring types of transport and achieving high productivity by the transport systems in providing uninterrupted service to the national economy. Thus, from the example of the Leningrad transportation network, which was approved by the CPSU Central Committee and broadly disseminated, an essentially new form of operation has been created and introduced, based on a system of coordinated continuous planning. This permits use of a unified production process, together with computer equipment. At the Leningrad transportation network and a number of others, such as the Magadan network, the system of coordinated continuous planning encompasses not only transport organizations, but also the basic organizations which are receiving freight.

However, all these organs are characterized by a variety of organizational structures and are practically separate in an organizational and legal sense. The activities of a number of these organs are not regulated by legislation and as a result, they are not always able to overcome departmental separatism and assure necessary cooperation by all types of transport.

Granted, the Transportation Network Regulations are confirmed by a joint order of the managers of local transport organizations and the Coordinating Commission Regulations are confirmed by a special transport council affiliated with the local soviet executive committee. But such regulations do not assign any responsibility for failure to observe decisions which have been made. The very decisions are only recommendations. For instance, the coordinating organ of a transportation network does not have the right to take disciplinary measures against those who violate the schedule of planned work, nor can it offer incentives for good work. It can only listen to a grievance and recommend that appropriate measures be taken by the manager of the transport organization which violated the schedule. In practice, the schedule of planned work does not have any legal force, either. Thus, if a railroad fails to provide a prescribed number of freight cars, it does not have any responsibility for this specific incident to neighboring organizations of the transportation network, but is responsible only for fulfilling the monthly plan for providing freight cars. The following example of lack of work coordination by neighboring forms of transport can be cited: the Ministry of Railways and the Ministry of the River Fleet receive requests from other ministries for freight shipments to the northern regions via the Osetrovo-Lenskiy transportation network. Fifty percent of the requests are coordinated with railroad officials and 75 percent with river fleet officials. The overall volume of requested freight shipments exceeds the processing capacity of the network by two-fold.

Difficulties in the work of transportation networks result not only from management deficiencies, but also from equipment incompatibility, outdated legal standards and obsolete production process standards. For example, coordinated operations are hindered by idle periods which result from the rules for loading freight cars, according to which the railroad seals the cars loaded by dock workers at a sea port.

To provide for coordinated and smooth operation of a transportation network, it is important that there is precise legal regulation of the procedures for interaction among the neighboring types of transport, as well as within each branch of transport, particularly in matters of realistic planning. It seems that the new operational forms in transportation networks, which arose within the framework of comprehensive socialist competition and are based mainly on voluntary principles, have already outgrown this framework and need an appropriate legal regulation.

Agreements have now been concluded within the framework of the inter-branch socialist competition of transport workers. These agreements have common indices for work and usually include common sections about increasing the level of mechanization for freight handling, introducing progressive methods for organizing labor and other provisions. But the character of the agreements is more exhortatory than legal. That is because individual provisions in such an agreement, such as the duties of competing groups to improve labor mechanization and develop spur tracks, structures, equipment, etc., are not always well-founded in an economic sense and essentially lack the protection of the law. When the provisions of the agreement are not observed, it is impossible to call the offenders to account and make them liable for losses incurred. Therefore, it is important that special regulations settle procedural questions about developing and monitoring comprehensive socialist competition agreements, as well as providing incentives and assigning responsibilities in these agreements. This would be analogous to the way in which procedures for accepting and carrying out counter-plans were strengthened--by establishing standards.

The above-mentioned inter-departmental coordinating organs arose in local areas as demanded by life itself, which attests to the need for a comprehensive solution of transport management problems. Centralization of transport management will also promote improvement of the system for collecting and processing information about operational conditions of the cooperating types of transport. This improved system will not only be within the framework of the branches' automated control systems [ACS], but will allow them to be united into a "Transport" ACS. With the aid of such an ACS, the UTS's highest control organ could efficiently perform its coordinating functions.

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